



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950
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July 1, 2016

16-NWP-114

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United States Department of Energy
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Pacific Northwest National Laboratory
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Richland, Washington 99352

Ms. Peggy McCullough, Project Director
Bechtel National, Inc.
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Richland, Washington 99354

Mr. Scott M. Sax, President
Washington Closure Hanford, LLC
2620 Fermi Avenue, MSIN: H4-24
Richland, Washington 99354

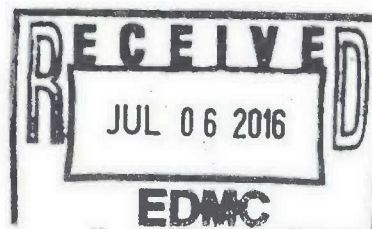
Mr. John A. Ciucci, President and CEO
CH2M HILL Plateau Remediation Company
PO Box 1600, MSIN: H7-30
Richland, Washington 99352

Mr. Mark A. Lindholm, President
Washington River Protection Solutions
PO Box 850 MSIN: H3-21
Richland, Washington 99352

Re: Final Class 3 Permit Modification 8c.2016.5F to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, Part V, Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F, WA7890008967

Dear Ladies and Gentlemen:

This letter issues the Department of Ecology's (Ecology) final permit decision to incorporate the permit modifications, 8c.2016.5F, into Part V, Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F, of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c for the Treatment, Storage and Disposal of Dangerous Waste*. In accordance with Washington Administrative Code (WAC) 173-303-840(8)(b), this Waste Encapsulation and Storage Facility (WESF) Hot Cells A through F permit is effective August 1, 2016.



As required by WAC 173-303-840, Ecology held a public comment period that ran from March 14 through April 27, 2016, for this permit modification. We received four sets of comments during the public comment period. We are issuing a *Response to Comments* document to meet the requirements of WAC 173-303-840(9). This document provides comment responses and describes the public involvement process taken in support of the public comment period. The *Response to Comments* (Ecology Publication 16-05-012) is also available on the Ecology website at <https://fortress.wa.gov/ecy/publications/documents/1605012.pdf>

In response to the comments received during the public comment period, two changes were made to the permit. Clarifying text was added to the Part A Form and two sentences were removed from Section H5.7 of the Closure Plan. Details of these changes are in the Ecology *Response to Comments* document.

The Permittees requested a Temporary Authorization in accordance with WAC 173-303-830(4)(e), to begin closure actions at the WESF Hot Cells A through F. Ecology granted a limited Temporary Authorization for 180 days, from March 31, through September 27, 2016, to cover site preparation and core drilling activities. Ecology granted a second Temporary Authorization for 180 days to cover grouting activities, effective June 3, through September 27, 2016, or until issuance of the final WESF Hot Cells A through F permit.

The enclosed DVD contains the final WESF Hot Cells A through F permit including of the *Response to Comments* document, permit conditions, Part A, Closure Plan, and supporting documentation. A copy of the Closure Unit Group 6, WESF Hot Cells A through F permit is on the web at <http://www.ecy.wa.gov/programs/nwp/permitting/hdwp/rev/8c/>.

The DVD contains the legal copy of the final WESF Hot Cells A through F permit. Legal hard copies of the WESF Hot Cells A through F permit are also on file at the following locations:

Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354

United States Department of Energy
Administrative Record
2440 Stevens Center Place
Richland, Washington 99354

This Class 3 Permit Modification details steps to support closure of Hot Cells A through F at WESF. The modification includes permit conditions, Part A, and a Closure Plan for WESF Hot Cells A through F. This modification also updates the Part I and II permit conditions of the Hanford Site-wide permit to move WESF Hot Cells A through F to Closure Unit Group 6 and revises Permit Attachment 9.

Your Right to Appeal:

You have a right to appeal this Permit to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Permit. The appeals process is governed by Chapter 43.21B Revised Code of Washington (RCW) and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

Mr. Kevin W. Smith, et al.
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To appeal you must do all of the following within 30 days of the date of receipt of this Permit:

- File your appeal and a copy of this Permit with the PCHB (see addresses on page 3). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Permit on Ecology in paper form – by mail or in person (see addresses on page 3). E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

1. To file your appeal with the Pollution Control Hearings Board:

Mail appeal to:

Pollution Control Hearings Board
PO Box 40903
Olympia, Washington 98504-0903

OR

Deliver your appeal in person to:

Pollution Control Hearings Board
1111 Israel Road, Southwest, Suite 301
Tumwater, Washington 98501

2. To serve your appeal on the Department of Ecology:

Mail appeal to:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, Washington 98504-7608

OR

Deliver your appeal in person to:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive, Southeast
Lacey, Washington 98503

3. Send a copy of your appeal to:

Stephanie Schleif
Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354

If there are any questions, please contact Stephanie Schleif, Project Manager, at stephanie.schleif@ecy.wa.gov or (509) 372-7929 or Mandy Jones, Permit Coordinator, at mandy.jones@ecy.wa.gov or (509) 372-7916.

Sincerely,



Suzanne Dahl
Dangerous Waste Permit Manager
Nuclear Waste Program
mj/jvs

Cc: See page 4

cc electronic w/o enc:

Dave Bartus, EPA
Dennis Faulk, EPA
Cliff Clark, USDOE
Rob Hastings, USDOE
Lori Huffman, USDOE
Tony McKarns, USDOE
Julie Reddick, USDOE
Brad Erlandson, BNI
Roger Landon, BNI
Sandi Murdock, BNI
Moussa Jaraysi, CHPRC
Stephanie Johansen, CHPRC

cc w/enc, DVD:

Katherine Kelly, USEPA
Cliff Clark, USDOE
Lori Huffman, USDOE
Rod Skeen, CTUIR
Gabriel Bohnee, NPT
Alyssa Buck, Wanapum
Russell Jim, YN
Steve Hudson, HAB
Ken Niles, ODOE
John Fowler, ACHP
Robin Priddy, BCAA
Donald Redman, USACE
Larry Klimek, USFW
Mike Livingston, WDFW
John Martell, WDOH
John Wiesman, WDOH
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Allyson Brooks, WSDAHP
Shane Early, WSDNR

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Jon Perry, MSA
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Michael Stephenson, PNNL
Lucinda Borneman, WRPS
Debra Alexander, Ecology
Jennifer Cantu, Ecology
Annette Carlson, Ecology
Kelly Elsethagen, Ecology
Mandy Jones, Ecology
Stephanie Schleif, Ecology
Ron Skinnarland, Ecology

BNI Correspondence Control
CHPRC Correspondence Control
Environmental Portal
Gonzaga University, Foley Center Library
Hanford Facility Operating Record
MSA Correspondence Control
PNNL Correspondence Control
Portland State University Library,
Government Information
University of Washington, Suzzallo Library,
Government Publications
USDOE-ORP Correspondence Control
USDOE Public Reading Room, CIC
USDOE-RL Correspondence Control
USEPA Region 10 Correspondence Control
USEPA Region 10 Hanford Field Office
Correspondence Control
WCH Correspondence Control
WRPS Correspondence Control

cc w/enc, DVD and hard copy:

Administrative Record: Hanford Site-wide Permit
NWP Central File
NWP Library

cc w/o enc:

NWP Reader File

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PERMIT ATTACHMENT 9
PERMIT APPLICABILITY MATRIX

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**PERMIT ATTACHMENT 9
PERMIT APPLICABILITY MATRIX**

PART I									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
I.A.	EFFECT OF PERMIT								
I.A.1.		*	*	*	*	*	*	*	
I.A.2.		*	*	*	*	*	*	*	
I.A.3.		*	*		*	*	*	*	
I.A.4.	Coordination with the HFFACO		*		*	*	*	*	
I.B.	PERSONAL AND PROPERTY RIGHTS		*		*	*	*	*	
I.C.	PERMIT ACTIONS								
I.C.1.	Modification, Revocation, Reissuance, or Termination		*		*	*	*	*	
I.C.2.	Filing of a Request		*		*	*	*	*	
I.C.3.	Modifications		*		*	*	*	*	
I.D.	SEVERABILITY								
I.D.1.	Effect of Invalidation		*		*	*	*	*	
I.D.2.	Final Resolution		*		*	*	*	*	
I.E.	DUTIES AND REQUIREMENTS								
I.E.1.	Duty to Comply		*		*	*	*	*	
I.E.2.	Compliance Not Constituting Defense		*		*	*	*	*	
I.E.3.	Duty to Reapply		*		*	*	*	*	
I.E.4.	Permit Expiration & Continuation		*		*	*	*	*	
I.E.5.	Need to Halt or Reduce Activity Not a Defense		*		*	*	*	*	
I.E.6.	Duty to Mitigate		*		*	*	*	*	
I.E.7.	Proper Operation & Maintenance		*			*	*	*	
I.E.8.	Duty to Provide Information		*		*	*	*	*	
I.E.9.	Inspection & Entry		*		*	*	*	*	
I.E.10.	Monitoring & Records								
I.E.11.	Reporting Planned Changes		*			*	*	*	
I.E.12.	Certification of Construction or Modification		*				*		
I.E.13.	Anticipated Noncompliance		*		*	*	*	*	

CATEGORIES ARE DEFINED AS FOLLOWS:

- | | |
|---|--|
| A. Leased Land | E. TSD Unit Closures (in Part V) |
| B. North Slope and ALE | F. TSD Operating Units (in Part III) |
| C. Interim Status TSD Units | G. TSD Units in Post-Closure/Modified Closure (in Part VI) |
| D. Areas Between TSDs (excluding A and B) | |

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

1 – For Category B, Part I Conditions only apply if future TSD activities are begun on the North Slope or ALE.

2 – For Category C, all Part I Conditions apply to activities subject to Conditions II.U. and II.V.

3 – For Category D, Part I Conditions only apply to activities subject to Conditions II.A., II.C., II.D.4., II.G., II.I., II.L.2.e, II.O., II.Q., II.S., II.T., II.X., and II.Y.

PART I									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
I.E.14.	Transfer of Permits		*			*	*	*	
I.E.15.	Immediate Reporting		*		*	*	*	*	
I.E.16.	Written Reporting		*		*	*	*	*	
I.E.17.	Manifest Discrepancy Report								
I.E.17.a			*			*	*	*	
I.E.17.b			*		*	*	*	*	
I.E.18.	Unmanifested Waste Report		*			*	*	*	
I.E.19.	Other Noncompliance		*		*	*	*	*	
I.E.20.	Other Information		*		*	*	*	*	
I.E.21.	Reports, Notifications, & Submissions		*		*	*	*	*	
I.E.22.	Annual Report		*		*	*	*	*	
I.F.	SIGNATORY REQUIREMENT		*		*	*	*	*	
I.G.	CONFIDENTIAL INFORMATION		*		*	*	*	*	
I.H.	DOCUMENTS TO BE MAINTAINED AT FACILITY SITE		*		*	*	*	*	

CATEGORIES ARE DEFINED AS FOLLOWS:

- | | |
|---|--|
| A. Leased Land | E. TSD Unit Closures (in Part V) |
| B. North Slope and ALE | F. TSD Operating Units (in Part III) |
| C. Interim Status TSD Units | G. TSD Units in Post-Closure/Modified Closure (in Part VI) |
| D. Areas Between TSDs (excluding A and B) | |

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

1 – For Category B, Part I Conditions only apply if future TSD activities are begun on the North Slope or ALE.

2 – For Category C, all Part I Conditions apply to activities subject to Conditions II.U. and II.V.

3 – For Category D, Part I Conditions only apply to activities subject to Conditions II.A., II.C., II.D.4., II.G., II.I., II.L.2.e, II.O., II.Q., II.S., II.T., II.X., and II.Y.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.A.	FACILITY CONTINGENCY PLAN								
II.A.1.					*	*	*	*	For Category D, II.A Conditions only apply to releases of hazardous substances that threaten human health or the environment.
II.A.2.					*	*	*	*	
II.A.3.					*	*	*	*	
II.A.4.					*	*	*	*	
II.B.	PREPAREDNESS AND PREVENTION								
II.B.1.						*	*		
II.B.2.						*	*		
II.B.3.						*	*		
II.B.4.						*	*		
II.B.5.						*	*		
II.C.	PERSONNEL TRAINING								
II.C.1.						*	*	*	
II.C.2.					*	*	*	*	
II.C.3.						*	*	*	
II.C.4.					*	*	*	*	For Category D, Condition II.C.4 will not apply to unrestricted (publicly accessible) areas.
II.D.	WASTE ANALYSIS								
II.D.1.						*	*	*	
II.D.2.						*	*	*	
II.D.3.						*	*	*	
II.E.	QUALITY ASSURANCE/ QUALITY CONTROL								
II.E.1.						*	*	*	
II.E.2.						*	*	*	
II.F.	GROUND WATER AND VADOSE ZONE MONITORING					*	*	*	

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.F.1.	Purgewater Management			*		*	*	*	
II.F.2.	Well Remediation and Abandonment			*		*	*	*	
II.F.3.	Well Construction			*		*	*	*	
II.F.4.	Annual Groundwater Report Due Date			*		*	*	*	
II.G.	SITING CRITERIA				*		*		For Category D, Condition II.G only applies if a new TSD unit is to be sited.
II.H.	RECORDKEEPING AND REPORTING					*	*	*	
II.I.	FACILITY OPERATING RECORD								For Category D, II.I Conditions only apply to activities subject to this Permit as defined by this matrix. For Category E, Condition applicability to be specified in Part V. Condition II.I only applies to existing records and records prepared after the date of Permit issuance.
II.I.1.		*	*		*	*	*	*	
II.I.1.a.		*	*		*	*	*	*	
II.I.1.b.							*	*	
II.I.1.c.					*	*	*	*	
II.I.1.d.						*	*	*	
II.I.1.e.			*		*				
II.I.1.f.					*	*	*	*	
II.I.1.g.						*	*	*	
II.I.1.h.	Reserved Condition								
II.I.1.i.	Reserved Condition								
II.I.1.j.						*	*	*	
II.I.1.k.					*	*	*	*	
II.I.1.l.	Reserved Condition								
II.I.1.m.						*	*	*	
II.I.1.n.					*	*	*	*	
II.I.1.o.	Reserved Condition								
II.I.1.p.			*		*	*	*	*	
II.I.1.q.			*		*	*	*	*	
II.I.1.r.					*	*	*	*	
II.I.1.s.					*	*	*	*	
II.I.1.t.					*	*	*	*	
II.J.	FACILITY CLOSURE								

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II										
CONDITION		CATEGORY							QUALIFIERS	
PART	TITLE	A	B	C	D	E	F	G		
II.J.1.						*	*	*		
II.J.2.						*	*	*		
II.J.3.						*	*	*		
II.J.4.						*	*	*		
II.K.	SOIL/GROUND WATER CLOSURE PERFORMANCE STANDARDS									
II.K.1.						*	*	*		
II.K.2.						*	*	*		
II.K.3.						*	*	*		
II.K.4.						*	*	*		
II.K.5.						*	*	*		
II.K.6.						*	*	*		
II.K.7.						*	*	*		
II.L.	DESIGN AND OPERATION OF FACILITY									
II.L.1.	Proper Design and Construction					*	*	*		
II.L.2.	Design Changes, Nonconformance and as-built Drawings					*	*	*	Condition II.L.2, applies to Categories E & G only if it is a landfill closure.	
II.L.2.a.						*	*	*		
II.L.2.b.						*	*	*		
II.L.2.c.						*	*	*		
II.L.2.d.						*	*	*		
II.L.2.e	Facility Compliance				*	*	*	*		
II.M.	SECURITY					*	*	*		
II.N.	RECEIPT OF DANGEROUS WASTES GENERATED OFF-SITE									
II.N.1.	Receipt of Off-Site Waste						*			
II.N.2.	Waste From Sources Outside the U.S.						*			
II.N.3.	Notice to Generator						*			

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.O.	GENERAL INSPECTION REQUIREMENTS								
II.O.1.					*	*	*	*	
II.O.1.a.					*				
II.O.1.b.					*				
II.O.1.c.					*				
II.O.1.d.					*				
II.O.2.					*	*	*	*	
II.O.3.					*	*	*	*	
II.P.	MANIFEST SYSTEM								
II.P.1.						*	*	*	
II.P.2.						*	*	*	
II.Q.	ON-SITE TRANSPORTATION								
II.Q.1.					*	*	*	*	
II.Q.2.					*	*	*	*	
II.R.	EQUIVALENT MATERIALS								
II.R.1.						*	*	*	
II.R.2.						*	*	*	
II.R.3.						*	*	*	
II.S.	LAND DISPOSAL RESTRICTIONS				*	*	*	*	
II.T.	ACCESS AND INFORMATION				*	*	*	*	
II.U.	MAPPING OF UNDERGROUND PIPING								
II.U.1.	Reserved Condition								
II.U.2.	Reserved Condition								
II.U.3.				*		*	*	*	
II.U.4.				*		*	*	*	
II.V.	MARKING OF UNDERGROUND PIPING			*		*	*	*	
II.W.	OTHER PERMITS AND/OR APPROVALS								
II.W.1.						*	*	*	
II.W.2.						*	*	*	

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.W.3.						*	*	*	
II.X.	SCHEDULE EXTENSIONS								Condition II.X, only applies to Category C if activities are subject to Conditions II.U, and II.V.
II.X.1.				*	*	*	*	*	
II.X.2.				*	*	*	*	*	Condition II.X, only applies to Category D if activities are subject to this Permit as defined by this matrix.
II.Y.	CORRECTIVE ACTION	*	*	*	*	*	*	*	
II.Y.1.	Compliance with <u>Chapter 173-340 WAC</u>	*	*	*	*	*	*	*	
II.Y.1.a.		*	*	*	*	*	*	*	
II.Y.1.b.		*	*	*	*	*	*	*	
II.Y.1.c.		*	*	*	*	*	*	*	
II.Y.1.d.		*	*	*	*	*	*	*	
II.Y.1.e.		*	*	*	*	*	*	*	
II.Y.1.f.		*	*	*	*	*	*	*	
II.Y.1.g.		*	*	*	*	*	*	*	
II.Y.2.	Acceptance of Work Under Other Authorities or Programs and Integration with the HFFACO	*	*	*	*	*	*	*	
II.Y.2.a.		*	*	*	*	*	*	*	
II.Y.2.b.		*	*	*	*	*	*	*	
II.Y.2.c.		*	*	*	*	*	*	*	
II.Y.2.d.		*	*	*	*	*	*	*	
II.Y.3.	Releases of Dangerous Waste or Dangerous Constituents Not Covered by the HFFACO	*	*	*	*	*	*	*	
II.Y.3.a.	U.S. Ecology	*	*	*	*	*	*	*	
II.Y.3.b.	Newly Identified Solid Waste Management Units and Newly Identified Releases of Dangerous Waste or Dangerous Waste Constituents	*	*	*	*	*	*	*	
II.Z	WASTE MINIMIZATION								
II.Z.1							*		

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.Z.1.a							*		
II.Z.1.b							*		
II.Z.2							*		
II.AA	AIR EMISSION STANDARDS FOR PROCESS VENTS						*		
II.BB	AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS						*		
II.CC	AIR EMISSION STANDARDS FOR TANKS, SURFACE IMPOUNDMENTS, AND CONTAINERS						*		

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART III									
CONDITION			CATEGORY						
PART	TITLE		A	B	C	D	E	F	G
III.	UNIT SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS								
III.2	PUREX Storage Tunnels							*	
III.3	Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility							*	
III.4	242-A Evaporator							*	
III.5	325 Hazardous Waste Treatment Units							*	
III.10	Waste Treatment and Immobilization Plant							*	
III.11	Integrated Disposal Facility							*	
III.15	331-C Storage Unit							*	
III.16	400 Area Waste Management Unit							*	
PART IV									
IV.	UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION								
IV.1	100-NR-1					*	*		
PART V									
V.	UNIT SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE								
V.1	1325-N Liquid Waste Disposal Facility						*		
V.2	1301-N Liquid Waste Disposal Facility						*		
V.3	1324-N Surface Impoundment & 1324-NA Surface Impoundment						*		
V.6	Waste Encapsulation and Storage Facility Hot Cells A through F						*		
PART VI									
VI.	UNIT SPECIFIC CONDITIONS FOR UNITS IN POST CLOSURE								
VI.1	300 Area Process Trenches								*
VI.2	183-H Solar Evaporation Basins								*

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land	E. TSD Unit Closures (Part V)
B. North Slope and ALE	F. TSD Operating Units (Part III)
C. Interim Status TSD Units	G. TSD Units in Post Closure/Modified Closure (Part VI)
D. Areas Between TSDs (excluding A and B)	

*Condition applies to this category, as modified by applicable footnotes and qualifiers.

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For the Treatment, Storage, and Disposal of Dangerous Waste



December 2014

For additional copies of this permit contact:

Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354-1670
509-372-7950

The Department of Ecology is an equal-opportunity agency and does not discriminate on the basis of race, creed, color disability, age, religion, national origin, sex, marital status, disabled-veteran status, Vietnam-era veteran status or sexual orientation.

For more information or if you have special accommodation needs, please contact the Nuclear Waste Program at (509) 372-7950.

Department of Ecology Headquarters telecommunications device for the deaf (TDD) number is: (360) 407-6006

**DANGEROUS WASTE PORTION OF THE
RESOURCE CONSERVATION AND RECOVERY ACT PERMIT
FOR THE TREATMENT, STORAGE, AND DISPOSAL OF DANGEROUS WASTE**

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354
Telephone: 509-372-7950

Issued in accordance with the applicable provisions of the Hazardous Waste Management Act,
Chapter 70.105 Revised Code of Washington (RCW), and the regulations promulgated there under in
Chapter 173-303 Washington Administrative Code (WAC).

ISSUED TO:

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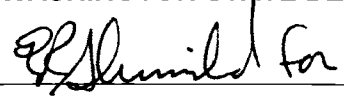
CH2MHILL Plateau Remediation Company
(Co-operator)
P.O. Box 1600, MSIN H7-30
Richland, Washington 99352
Telephone: (509) 376-0556

Part I Standard and Part II General Facility Conditions

1 This Permit as modified on October 22, 2007, will remain in effect until reissuance of the
2 September 27, 2004 Permit, unless revoked and reissued under WAC 173-303-830(3), terminated under
3 WAC 173-303-830(5), or continued in accordance with WAC 173-303-806(7).

4 ISSUED BY:

5 **WASHINGTON STATE DEPARTMENT OF ECOLOGY**

6  for

Date: 10/17/07

7 Jane A. Hedges, Program Manager

8 Nuclear Waste Program, Department of Ecology

**DANGEROUS WASTE PORTION OF THE
RESOURCE CONSERVATION AND RECOVERY ACT PERMIT
FOR THE TREATMENT, STORAGE, AND DISPOSAL OF DANGEROUS WASTE**

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LIST OF ATTACHMENTS

The following listed documents are attached in their entirety. However, only those portions of the attachments specified in Parts I through VI are enforceable conditions of this Permit and subject to the permit modification requirements of Permit Condition I.C.3. Changes to portions of the attachments, which are not subject to the permit modification process, will be addressed in accordance with Permit Conditions I.E.8, I.E.11, I.E.13, I.E.15, through I.E.20, and I.E.22. The Washington State Department of Ecology (Ecology) has, as deemed necessary, modified specific language in these attachments. These modifications are described in the conditions (Parts I through VI), and thereby supersede the language of the attachment.

- Attachment 1 Hanford Federal Facility Agreement and Consent Order, (as amended)
<http://www.hanford.gov/tpa/coverpg.htm>
- Attachment 2 Hanford Facility Legal Description, from Class ¹1 modification, dated January 7, 1999
- Attachment 3 Security, dated September 30, 2010
- Attachment 4 *Hanford Emergency Management Plan*, DOE/RL-94-02 Revision 6, as amended and approved modifications
- Attachment 5 Hanford Facility Personnel Training Program, dated September 30, 2015
- Attachment 6 Reports and Records, dated September 30, 2015
- Attachment 7 Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and CERCLA, June 1990
- Attachment 8 Hanford Well Maintenance and Inspection Plan, HNF-56398, Revision 1, April 10, 2014
- Attachment 9 Permit Applicability Matrix, dated June 29, 2016
- Attachment 10 Purgewater Management Plan, July 1990

INTRODUCTION

Where information regarding treatment, management, and disposal of the radioactive source, byproduct material, special nuclear material (as defined by the Atomic Energy Act of 1954, as amended) and/or the radionuclide component of mixed waste has been incorporated into this permit, it is not incorporated for the purpose of regulating the radiation hazards of such components under the authority of this permit or Chapter 70.105 RCW.

Pursuant to Chapter 70.105 RCW, the Hazardous Waste Management Act (HWMA) of 1976, as amended, Chapter 70.105D RCW, the Model Toxics Control Act (MTCA), and regulations promulgated there under by the Washington State Department of Ecology (hereafter called Ecology), codified in Chapter 173-303 Washington Administrative Code (WAC), Dangerous Waste Regulations, a Dangerous Waste Permit is issued to the United States Department of Energy (USDOE) - Richland Operations Office (RL) and Office of River Protection (ORP) [owner/operator], and its contractors [co-operators], Bechtel National, Incorporated (BNI), CH2MHILL Plateau Remediation Company (CHPRC), Mission Support Alliance, LLC (MSA)], Pacific Northwest National Laboratory (PNNL), Washington Closure Hanford, LLC (WCH), and Washington River Protection Solutions, LLC (WRPS) and hereafter called the Permittees, for the treatment, storage, and disposal of dangerous waste at the Hanford Facility.

This Dangerous Waste Permit, issued in conjunction with the United States Environmental Protection Agency's (hereafter called EPA) Hazardous and Solid Waste Amendments Portion of the Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal (TSD) of Hazardous Waste (HSWA Permit), constitutes the RCRA Permit for the Hanford Facility. Use of the term "Permit" within the Dangerous Waste Permit will refer to the Dangerous Waste Permit, while use of the term "Permit" within the HSWA Permit, will refer to the HSWA Permit. Use of the same term in both the Dangerous Waste Permit and the HSWA Permit, will have the standard meaning associated with the activities addressed by the permit in which the term is used. Such meanings will prevail, except where specifically stated otherwise.

The Permittees will comply with all terms and conditions set forth in this Permit and those portions of the Attachments that have been specifically incorporated into this Permit. When the Permit and the Attachments (except Permit Attachment 1) conflict, the wording of the Permit will prevail. The Permit is intended to be consistent with the terms and conditions of the Hanford Federal Facility Agreement and Consent Order (HFFACO, Permit Attachment 1). The Permittees will also comply with all applicable state regulations, including Chapter 173-303 WAC.

Applicable state regulations are those which are in effect on the date of issuance, or as specified in subsequent modifications of this Permit. In addition, applicable state regulations include any self-implementing statutory provisions and related regulations which, according to the requirements of the HWMA, as amended, or other law(s), are automatically applicable to the Permittees' dangerous waste management activities, notwithstanding the conditions of this Permit.

This Permit is based upon the Administrative Record, as required by WAC 173-303-840. The Permittees' failure in the application, or during the Permit issuance process, to fully disclose all relevant facts, or the Permittees' misrepresentation of any relevant facts at any time, will be grounds for the termination or modification of this Permit and/or initiation of an enforcement action, including criminal proceedings. The Permittees will inform Ecology of any deviation from the Permit conditions, or changes in the information on which the application is based, which would affect either the Permittees' ability to comply, or actual compliance with the applicable regulations or the Permit conditions, or which alters any condition of this Permit in any way.

Part I Standard and Part II General Facility Conditions

Ecology will enforce all conditions of this Permit for which the State of Washington is authorized, or which are "state-only" provisions (i.e., conditions broader in scope or more stringent than the federal RCRA program). Any challenges of any Permit condition may be appealed in accordance with WAC 173-303-845. In the event that any Permit condition is challenged by any Permittee under WAC 173-303-845, Ecology may stay any such Permit condition as it pertains to all Permittees, in accordance with the same terms of any stay it grants to the challenging Permittee. If such a stay is granted, it will constitute a "stay by the issuing agency" within the meaning of RCW 43.21B.320(1).

This Permit has been developed to allow a step-wise permitting process of the Hanford Facility to ensure the proper implementation of the HFFACO. In order to accomplish this, this Permit consists of six (6) parts.

Part I, Standard Conditions, contains conditions which are similar to those appearing in all dangerous waste permits.

Part II, General Facility Conditions, combines typical dangerous waste permit conditions with those conditions intended to address issues specific to the Hanford Facility. Where appropriate, the general facility conditions apply to all final status dangerous waste management activities at the Facility. Where appropriate, the general facility conditions also address dangerous waste management activities which may not be directly associated with distinct TSD units, or which may be associated with many TSD units (i.e., spill reporting, training, contingency planning, etc.). Part II also includes conditions that address corrective action at solid waste management units and areas of concern.

Part III, Unit-Specific Conditions for Operating Units, contains those Permit requirements that apply to each individual TSD unit operating under final status. Conditions for each TSD unit are found in a chapter dedicated to that TSD unit. These unit-specific chapters contain references to Standard Conditions (Part I) and General Conditions (Part II), as well as additional requirements which are intended to ensure that each TSD unit is operated in an efficient and environmentally protective manner. Additional requirements may also be added when an operating unit ceases operations and undergoes closure.

Part IV, Unit-Specific Conditions for Corrective Action, contains Permit conditions for releases from Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). For past practice units identified in the HFFACO as either Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Past Practice units (CPP units) or combined Resource Conservation and Recovery Act-Comprehensive Environmental Response, Compensation and Liability Act Past Practice units (R-CPP units), the corrective action conditions are structured around reliance on, the investigation and cleanup requirements established under the HFFACO. For TSD units identified in the HFFACO, the corrective action conditions contemplate use of closure and post-closure processes to satisfy corrective action.

Part V, Unit-Specific Conditions for Units Undergoing Closure, contains those requirements which apply to those specific TSD units, included in this part, that are undergoing closure. In accordance with Section 5.3 of the Action Plan of the HFFACO, all TSD units that undergo closure, irrespective of permit status, will be closed pursuant to the authorized State Dangerous Waste Program in accordance with WAC 173-303-610. Requirements for each TSD unit undergoing closure are found in a chapter dedicated to that TSD unit. These unit-specific chapters contain references to Standard Conditions (Part I) and General Conditions (Part II), as well as additional requirements which are intended to ensure that each TSD unit is closed in an efficient and environmentally protective manner.

1 **Part VI, Unit-Specific Conditions for Units in Post-Closure**, contains those requirements which apply
2 to those specific units in this part that have completed modified or landfill closure requirements, and now
3 only need to meet Post-Closure Standards. As set forth in Section 5.3 of the Action Plan of the HFFACO,
4 certain TSD units will be permitted for post-closure care pursuant to the authorized State Dangerous
5 Waste Program (173-303 WAC) and the Hazardous and Solid Waste Amendments. Requirements for
6 each unit undergoing post-closure care are found in a chapter, within this part, dedicated to that unit.
7 These unit specific chapters may contain references to Standard Conditions (Part I) and General
8 Conditions (Part II), as well as the unit specific conditions, all of which are intended to ensure the unit is
9 managed in an efficient, environmentally protective manner.

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UNIT STATUS TABLE

Permit Revision	Revision Date	Units Incorporated
Permit Revision 0	8/29/94	616 NDWSF, 305-B Storage Facility, 183-H SEB, 300 ASE, 2727-S, NRDWSF
Permit Revision 1	4/28/95	Simulated High-Level Waste Slurry, 218-E-9 Borrow Pit Demo Site, 200 W Area Ash Pit Demo Site, 2101-M Pond, 216-B-3 Expansion Ponds
Permit Revision 2	8/29/95	Hanford Patrol Academy Demolition Site, 105-DR Large Sodium Fire Facility, 304 Concretion Facility
Permit Revision 3	11/25/96	PUREX Storage Tunnels, 4843 Alkali Metal Storage Facility, 3718-F Alkali Metal Treatment & Storage Facility, 303-K Storage Facility, 300 APT
Permit Revision 4	1/28/98	LERF & 200 Area ETF, 242-A Evaporator, 325 HWTUs
Permit Revision 5	5/18/99	100 D Ponds, 1301-N & 1325-Liquid Waste Disposal Facility, 1324-N Surface Impoundment, 1324-NA Percolation Pond
Permit Revision 6	3/28/00	Permit Condition II.Y, Corrective Action
Permit Revision 7	2/27/01	Waste Treatment & Immobilization Plant, 300 Area WATS
Permit Revision 8	9/23/04	No new units, modification updates
Permit Revision 8A	3/6/06	Integrated Disposal Facility
Permit Revision 8B	1/2007	331-C Storage Unit, PFP Treatment Unit, 241-Z Treatment & Storage Tanks, 303-M Oxide Facility
Permit Revision 8C	8/2007	400 Area Waste Management Unit, 224-T TRUSAF
Permit Revision 8C (8c.2016.2F)	01/21/2016	FS-1 Outdoor Container Storage Area Closure
Permit Revision 8C (8c.2016.5F)	07/01/2016	WESF Hot Cells A through F

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UNIT	Permit Revision		Comments/History
	Incorporated	Retired	
PART III, OPERATING UNITS			
616 Non-Radioactive Dangerous Waste Storage Facility	Rev. 6	Rev. 7	Closed, 9/5/01
242-A Evaporator	Rev. 4		
305-B Storage Facility	Rev. 0		Closed, 7/2/07
325 Hazardous Waste Treatment Units	Rev. 4		RLWT procedural closure, 9/04
LERF & 200 Area ETF	Rev. 4		
PUREX Storage Tunnels	Rev. 3		
Waste Treatment and Immobilization Plant	Rev. 7		Permitted unit under construction
Integrated Disposal Facility	Rev. 8A		

Part I Standard and Part II General Facility Conditions

UNIT	Permit Revision		Comments/History
	Incorporated	Retired	
331-C Storage Unit	Rev. 8B		
400 Area Waste Management Unit	Rev. 8C		
PART IV, CORRECTIVE ACTION			
100-NR-1 Operable Unit	Rev. 6		
100-NR-2 Operable Unit	Rev. 6	Rev. 8C	Retired, 9/30/09
PART V, UNDERGOING CLOSURE UNITS			
100-D Ponds	Rev. 5	Rev. 6	Closed, 8/9/99
105 DR Large Sodium Fire Facility	Rev. 2	Rev. 6	Closed, 7/1/04
1301-N Liquid Waste Disposal Facility	Rev. 5		
1324-N Surface Impoundment	Rev. 5		
1324-NA Percolation Pond	Rev. 5		
1325-N Liquid Waste Disposal Facility	Rev. 5		
200 West Area Ash Pit Demo Site	Rev. 1	Rev. 6	Closed, 11/28/95
2101-M Pond	Rev. 1	Rev. 6	Closed, 11/28/95
216-B-3 Expansion Ponds	Rev. 1	Rev. 6	Closed, 7/31/95
218-E-8 Borrow Demolition Site	Rev. 1	Rev. 6	Closed, 11/28/95
2727-S Storage Facility	Rev. 0	Rev. 6	Closed, 7/31/95
300 Area Solvent Evaporator	Rev. 0	Rev. 6	Closed, 7/31/95
300 Area Waste Acid Treatment System	Rev. 6	Rev. 8B	Closed, 1/21/05
303-K Storage Facility	Rev. 4	Rev. 6	Closed, 7/22/02
304 Concretion Facility	Rev. 2	Rev. 6	Closed, 1/21/96
311 Tanks (includes 300 Area WATS)	Rev. 6	Rev. 7	Closed, 5/20/02
3718-F Alkali Metal Treatment /Storage	Rev. 3	Rev. 6	Closed, 8/4/98
4843 Alkali Metal Storage Facility	Rev. 3	Rev. 6	Closed, 4/14/97
Hanford Patrol Academy Demo Site	Rev. 2	Rev. 6	Closed, 11/28/95
Simulated High Level Waste Slurry	Rev. 1	Rev. 6	Closed, 9/6/95
PFP Treatment Unit (HA-20MB)	Rev. 8B	Rev. 8B	Closed, 2/8/05
241-Z Treatment and Storage Tanks	Rev. 8B	Rev. 8B	Closed, 2/22/07
303-M Oxide Facility	Rev. 8B	Rev. 8B	Closed, 6/15/06
224-T Transuranic Waste Storage and Assay Facility	Rev. 8C	Rev. 8C	Closed, 11/12/08

Part I Standard and Part II General Facility Conditions

UNIT	Permit Revision		Comments/History
	Incorporated	Retired	
FS-1 Outdoor Container Storage Area Closure	Rev. 8C		
WESF Hot Cells A through F	Rev. 8C		
PART VI, POSTCLOSURE UNITS			
183-H Solar Evaporation Basin	Rev. 4		
300 Area Process Trenches	Rev. 3		
PROCEDURALLY CLOSED			
216-U-12 Crib	N/A	N/A	Closed, 7/19/07
221-T Test Facility	N/A	N/A	Closed, 2/22/99
2727-WA SRE Sodium Storage Bldg	N/A	N/A	Closed, 2/22/99
324 Pilot Plant	N/A	N/A	Closed, 6/9/97
332 Storage Facility	N/A	N/A	Closed, 4/21/97
437 Maintenance and Storage Facility	N/A	N/A	Closed, 9/11/03
Biological Treatment Test Facilities	N/A	N/A	Closed, 12/10/96
Physical/Chemical Treatment Test Facilities	N/A	N/A	Closed, 5/13/96
Sodium Storage/Sodium Reaction	N/A	N/A	Closed, 9/17/03
Thermal Treatment Test Facilities	N/A	N/A	Closed, 5/13/96
TO BE INCORPORATED			
1706-KE Waste Treatment System			
207-A South Retention Basin			
216-A-29 Ditch			
216-A-36B Crib			
216-A-37-1 Crib			
216-B-3 Main Pond			
216-B-63 Trench			
216-S-10 Pond & Ditch			
222-S Dangerous & Mixed Waste TSD Unit			
241-CX Tank System			

Part I Standard and Part II General Facility Conditions

UNIT	Permit Revision		Comments/History
	Incorporated	Retired	
600 Area Purgewater Storage and Treatment Facility			
Central Waste Complex			
Contact Handled Transuranic Mixed Waste Packaging and Interim Storage Facility			
DST System/204-AR Waste Unloading Station			
Grout Treatment Facility			
Hexone Storage & Treatment Facility			
IHLW Interim Storage/Canister Storage Building			
Low-Level Burial Grounds			
Nonradioactive Dangerous Waste Landfill			
Single-Shell Tank System			
T Plant Complex			
Waste Encapsulation and Storage Facility			
Waste Receiving and Processing Facility			
TRANSITION UNDER HFFACO ACTION PLAN, SECTION 8 (Will not be incorporated into Permit)			
B Plant Complex			
PUREX Plant			

DEFINITIONS

Except with respect to those terms specifically defined below, all definitions contained in the HFFACO, May 1989, as amended, and in WAC 173-303-040 and other portions of Chapter 173-303 WAC are hereby incorporated, in their entirety, by reference into this Permit. For terms defined in both Chapter 173-303 WAC and the HFFACO, the definitions contained in Chapter 173-303 WAC will control within this Permit. Nonetheless, this Permit is intended to be consistent with the HFFACO.

Where terms are not defined in the regulations, the Permit, or the HFFACO, a standard dictionary reference, or the generally accepted scientific or industrial meaning of the terms will define the meaning associated with such terms.

As used in this Permit, words in the masculine gender also include the feminine and neuter genders, words in the singular include the plural, and words in the plural include the singular.

The following definitions apply throughout this Permit:

The term "**Area of Concern**" means any area of the Facility where a release of dangerous waste or dangerous constituents has occurred, is occurring, is suspected to have occurred, or threatens to occur.

The term "**Contractor(s)**" means, unless specifically identified otherwise in this Permit, or Attachments, Bechtel National, Inc. (BNI), CH2M HILL Plateau Remediation Company, Inc. (CHPRC), Mission Support Alliance, LLC (MSA), Pacific Northwest National Laboratory (PNNL), Washington Closure Hanford, LLC (WCH), and Washington River Protection Solutions, LLC (WRPS).

The term "**Critical Systems**" as applied to determining whether a Permit modification is required, means those specific portions of a TSD unit's structure, or equipment, whose failure could lead to the release of dangerous waste into the environment, and/or systems which include processes which treat, transfer, store, or dispose of regulated wastes. A list identifying the critical systems of a specific TSD unit may be developed and included in Part III, V, and/or VI of this Permit. In developing a critical system list, or in the absence of a critical system list, WAC 173-303-830 Modifications will be considered.

The term "**Dangerous Constituent**" means any constituent identified in WAC 173-303-9905 or 40 CFR Part 264 Appendix IX, any constituent which caused a waste to be listed or designated as dangerous under Chapter 173-303 WAC, and any constituents within the meaning of hazardous substance at RCW 70.105D.020(7).

The term "**Dangerous Waste**" means those solid wastes designated under Chapter 173-303 WAC as dangerous or extremely hazardous waste. As used in the Permit, the phrase "dangerous waste" will refer to the full universe of wastes regulated by Chapter 70.105 RCW and Chapter 173-303 WAC (including dangerous waste, hazardous waste, extremely hazardous waste, mixed waste, and acutely hazardous waste).

The term "**Days**" means calendar days, unless specifically identified otherwise. Any submittal, notification, or recordkeeping requirement that would be due, under the Conditions of this Permit, on a Saturday, Sunday, or federal, or state holiday, will be due on the following business day, unless specifically stated otherwise in the Permit.

The term "**Director**" means the Director of the Washington State Department of Ecology, or a designated representative. The Program Manager of the Nuclear Waste Program (with the address as specified on page one [1] of this Permit) is a duly authorized and designated representative of the Director for purposes of this Permit.

The term "**Ecology**" means the Washington State Department of Ecology (with the address as specified on page one [1] of this Permit).

Part I Standard and Part II General Facility Conditions

1 The term "**Facility**" means all contiguous land, structures, other appurtenances, and improvements on the
2 land used for recycling, reusing, reclaiming, transferring, storing, treating, or disposing of dangerous
3 waste. The legal and physical description of the Facility is set forth in Permit Attachment 2.

4 The term "**Facility**" for the purposes of corrective action under Permit Condition II.Y, means all
5 contiguous property under the control of the Permittees and all property within the meaning of "facility"
6 at RCW 70.105D.020(3) as set forth in Permit Attachment 2.

7 The term "**HFFACO**" means the Hanford Federal Facility Agreement and Consent Order, as amended
8 (Commonly referred to as Tri-Party Agreement [TPA]).

9 The term "**Permittees**" means the United States Department of Energy (owner/operator), Bechtel
10 National, Inc. (Co-operator), CH2M HILL Plateau Remediation Company (Co-operator), Mission
11 Support Alliance, LLC (MSA), Pacific Northwest National Laboratory (Co-operator), Washington
12 Closure Hanford, LLC (Co-operator), Washington River Protection Solutions, LLC.

13 The term "**Permittees**" for purposes of corrective action under Permit Condition II.Y means only the
14 United States Department of Energy (owner/operator).

15 The term "**Raw Data**" means the initial value of analog or digital instrument output, and/or manually
16 recorded values obtained from measurement tools or personal observation. These values are converted
17 into reportable data (e.g., concentration, percent moisture) via automated procedures and/or manual
18 calculations.

19 The term "**RCRA Permit**" means the Dangerous Waste Portion of the RCRA Permit for the Treatment,
20 Storage, and Disposal of Dangerous Waste (Dangerous Waste Permit) issued by the Washington State
21 Department of Ecology, pursuant to Chapter 70.105 RCW and Chapter 173-303 WAC, coupled with the
22 HSWA Portion of the RCRA Permit for the Treatment, Storage, and Disposal of Hazardous Waste
23 (HSWA Permit) issued by EPA, Region 10, pursuant to 42 U.S.C. 6901 et seq. and 40 CFR Parts 124 and
24 270.

25 The term "**Reasonable Times**" means normal business hours; hours during which production, treatment,
26 storage, construction, disposal, or discharge occurs, or times when Ecology suspects a violation requiring
27 immediate inspection.

28 The term "**Release**" means any intentional or unintentional spilling, leaking, pouring, emitting, emptying,
29 discharging, injecting, pumping, escaping, leaching, dumping, or disposing of dangerous constituents into
30 the environment and includes the abandonment or discarding of barrels, containers, and other receptacles
31 containing dangerous waste or dangerous constituents, and includes any releases within the meaning of
32 release at RCW 70.105D.020(20).

33 The term "**Significant Discrepancy**" in regard to a manifest or shipping paper, means a discrepancy
34 between the quantity or type of dangerous waste designated on the manifest, or shipping paper, and the
35 quantity or type of dangerous waste a TSD unit actually receives. A significant discrepancy in quantity is
36 a variation greater than ten (10) percent in weight for bulk quantities (e.g., tanker trucks, railroad tank
37 cars, etc.), or any variation in piece count for nonbulk quantities (i.e., any missing container or package
38 would be a significant discrepancy). A significant discrepancy in type is an obvious physical or chemical
39 difference which can be discovered by inspection or waste analysis (e.g., waste solvent substituted for
40 waste acid).

41 The term "**Solid Waste Management Unit (SWMU)**" means any discernible location at the Facility
42 where solid wastes have been placed at any time, irrespective of whether the location was intended for the
43 management of solid or dangerous waste, and includes any area at the Facility at which solid wastes have
44 been routinely and systematically released (for example through spills), and includes dangerous waste
45 treatment, storage, and disposal units.

Part I Standard and Part II General Facility Conditions

1 The term "**Unit**" or "**TSD unit**", as used in Parts I through VI of this Permit, means the contiguous area
2 of land on or in which dangerous waste is placed, or the largest area in which there is a significant
3 likelihood of mixing dangerous waste constituents in the same area. A TSD unit, for purposes of this
4 Permit, is a subgroup of the Facility which has been identified in a Hanford Facility Dangerous Waste
5 Part A Form.

6

ACRONYMS

1		
2	ALARA	As Low As Reasonably Achievable
3	AMSF	Alkali Metal Storage Facility
4	APDS	Ash Pit Demolition Site
5	APP	Used to Denote Appendix Page Numbers
6	APT	Area Process Trenches
7	ARAR	Applicable, Relevant, and Appropriate Requirements
8	BNI	Bechtel National, Inc
9	BPDS	Borrow Pit Demolition Site
10	CD/RR	Chemical Disposal/Recycle Request
11	CERCLA	Comprehensive Environmental Response Compensation and Liability Act of
12		1980 (as Amended by the Superfund Reauthorization Act of 1986)
13	CFR	Code of Federal Regulations
14	CHPRC	CH2M HILL Plateau Remediation Company
15	CIP	Construction Inspection Plan
16	CLARC	Cleanup Levels and Risk Calculations
17	CLP	Contract Laboratory Program
18	COC	Chemical Contaminants of Concern
19	CPP	CERCLA Past Practice
20	USDOE-RL	U.S. Department of Energy, Richland Operations Office
21	USDOE-ORP	U.S. Department of Energy, Office of River Protection
22	DQO	Data Quality Objective
23	DSC	Differential Scanning Colorimetry
24	EC	Emergency Coordinator
25	Ecology	Washington State Department of Ecology
26	EPA	U.S. Environmental Protection Agency
27	ERA	Expedited Response Action
28	ETF	200 Area Effluent Treatment Facility
29	HFFACO	Hanford Federal Facility Agreement and Consent Order
30	GW	Ground Water
31	HPADS	Hanford Patrol Academy Demolition Site
32	HSWA	Hazardous and Solid Waste Amendments of 1984
33	HWMA	Hazardous Waste Management Act
34	ID	Identification
35	IRM	Interim Remedial Measure

Part I Standard and Part II General Facility Conditions

1	LDR	Land Disposal Restrictions
2	LERF	Liquid Effluent Retention Facility
3	LSFF	105-DR Large Sodium Fire Facility
4	MSA	Mission Support Alliance, LLC
5	MTCA	Model Toxics Control Act
6	OSWER	Office of Solid Waste and Emergency Response
7	PNNL	Pacific Northwest National Laboratory
8	QA	Quality Assurance
9	QAPP	Quality Assurance Project Plan
10	QC	Quality Control
11	RCRA	Resource Conservation and Recovery Act of 1976
12	RCW	Revised Code of Washington
13	ROD	Record of Decision
14	RPD	Relative Percent Difference
15	RPP	RCRA Past Practice
16	SAP	Sampling and Analysis Plan
17	SARA	Superfund Amendments and Reauthorization Act of 1986
18	SCD	Security Control Devices
19	SHLWS	Simulated High Level Waste Slurry
20	SOP	Standard Operating Procedure
21	SWMU	Solid Waste Management Unit
22	TCLP	Toxicity Characteristic Leaching Procedure
23	TSD	Treatment, Storage, and/or Disposal
24	USDOE	United States Department of Energy
25	U.S.C.	United States Code
26	WAC	Washington Administrative Code
27	WAP	Waste Analysis Plan
28	WCH	Washington Closure Hanford, LLC
29	WRPS	Washington River Protection Solutions, LLC
30	WTP	Waste Treatment and Immobilization Plant
31	183-H	183-H Solar Evaporation Basins
32	242-A	242-A Evaporator
33	300 APT	300 Area Process Trenches
34	300 ASE	300 Area Solar Evaporator
35	303-K	303-K Storage Facility

Part I Standard and Part II General Facility Conditions

1	305-B	305-B Storage Facility
2	325 HWTUs	325 Hazardous Waste Treatment Units
3	616-NRDWSF	616 Nonradioactive Dangerous Waste Storage Facility
4		

PART I STANDARD CONDITIONS**I.A Effect of Permit**

The Permittees are authorized to treat, store, and dispose of dangerous waste in accordance with the Conditions of this Permit and in accordance with the applicable provisions of Chapter 173-303 WAC (including provisions of the Chapter as they have been applied in the HFFACO). Any treatment, storage, or disposal of dangerous waste by the Permittees at the Facility that is not authorized by this Permit, or by WAC 173-303-400 (including provisions of this regulation as they have been applied in the HFFACO), for those TSD units not subject to this Permit, and for which a Permit is required by Chapter 173-303 WAC, is prohibited.

TSD units operating or closing under interim status will maintain interim status until that TSD unit is incorporated into Part III, V, and/or VI of this Permit, or until interim status is terminated under WAC 173-303-805(8). Interim status units will be incorporated into this Permit through the Permit modification process.

The Conditions of this Permit will be applied to the Facility as defined by the Permit Applicability Matrix (Permit Attachment 9).

I.A.1 USDOE is responsible for activities which include, but are not limited to, the overall management and operation of the Facility.

BNI is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

CHPRC is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

MSA is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

PNNL is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

WCH is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

WRPS is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

I.A.2 Coordination with the HFFACO

Each TSD unit will have an application for a final status Permit or closure/post-closure plan submitted to Ecology in accordance with the schedules identified in the HFFACO Milestone M-20-00 or in accordance with WAC 173-303-830. After completion of the Permit application or closure/post-closure plan review, a final Permit decision will be made pursuant to WAC 173-303-840. Specific Conditions for each TSD unit will be incorporated into this Permit in accordance with the Class 3 Permit modification procedure identified in Permit Condition I.C.3.

I.B Personal and Property Rights

This Permit does not convey property rights of any sort, or any exclusive privilege; nor does it authorize any injury to persons or property, or any invasion of other private rights, or any violation of federal, state, or local laws or regulations.

I.C Permit Actions

I.C.1 Modification, Revocation, Reissuance, or Termination

This Permit may be modified, revoked and reissued, or terminated by Ecology for cause per WAC 173-303-810(7) as specified in WAC 173-303-830(3), (4), and (5).

I.C.2 Filing of a Request

The filing of a request for a Permit modification, or revocation and reissuance, or termination, or a notification of planned changes, or anticipated noncompliance on the part of the Permittees, will not stay any Permit condition [WAC 173-303-810(7)] except as provided in WAC 173-303-810(2) under an emergency permit.

I.C.3 Modifications

I.C.3.a Except as provided otherwise by specific language in this Permit, the Permit modification procedures of WAC 173-303-830(2), (3), and (4) will apply to modifications or changes in design or operation of the Facility, or any modification or change in dangerous waste management practices covered by this Permit.

I.C.3.b As an exception, the Permittees will provide notifications to Ecology required by WAC 173-303-830(4)(a)(i)(A) on a quarterly basis. Each quarterly notification will be submitted within ten (10) days of the end of the quarter, and provide the required information for all such modification s put into effect during that reporting period.

I.C.3.c Quarterly reporting periods will be based upon the state Fiscal Year. For notifications required by the Permittees to persons on the facility mailing list described in WAC 173-303-830(4)(a)(i)(B), -830(4)(b)(ii), -830(4)(c)(ii), and -830(4)(e)(ii)(C), use of appropriate HFFACO Community Relations Plan publications and/or list servers for public involvement satisfy the notification requirements.

I.D Severability

I.D.1 Effect of Invalidation

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance is contested and/or held invalid, the application of such provision to other circumstances and the remainder of this Permit will not be affected thereby. Invalidation of any state statutory or regulatory provision which forms the basis for any Condition of this Permit does not affect the validity of any other state statutory or regulatory basis for said Condition.

I.D.2 Final Resolution

In the event that a Condition of this Permit is stayed for any reason, the Permittees will continue to comply with the related applicable and relevant interim status standards in WAC 173-303-400 until final resolution of the stayed Condition, unless Ecology determines compliance with the related applicable and relevant interim status standards would be technologically incompatible with compliance with other Conditions of this Permit, which have not been stayed, or unless the HFFACO authorizes an alternative action, in which case the Permittees will comply with the HFFACO.

I.E Duties and Requirements**I.E.1 Duty to Comply**

The Permittees will comply with all Conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency Permit issued under WAC 173-303-804. Any Permit noncompliance other than noncompliance authorized by an emergency Permit constitutes a violation of Chapter 70.105 RCW, as amended, and is grounds for enforcement action, Permit termination, modification or revocation and reissuance of the Permit, and/or denial of a Permit renewal application.

I.E.2 Compliance Not Constituting Defense

Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Section 3007, 3008, 3013, or 7003 of RCRA (42 U.S.C. Sections 6927, 6928, 6934, and 6973), Section 104, 106(a) or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) [42 U.S.C. Sections 9604, 9606(a), and 9607], as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. 9601 et seq.), or any other federal, state, or local law governing protection of public health, or the environment; provided, however, that compliance with this Permit during its term constitutes compliance at those areas subject to this Permit for the purpose of enforcement with WAC 173-303-140, WAC 173-303-180, WAC 173-303-280 through -395, WAC 173-303-600 through -680, WAC 173-303-810, and WAC 173-303-830, except for Permit modifications and those requirements not included in the Permit that become effective by statute, or that are promulgated under 40 CFR Part 268 restricting the placement of dangerous waste in or on the land.

I.E.3 Duty to Reapply

If the Permittees wish to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittees must apply for, and obtain a new Permit, in accordance with WAC 173-303-806(6).

I.E.4 Permit Expiration and Continuation

This Permit, and all Conditions herein, will remain in effect beyond the Permit's expiration date until the effective date of the new Permit, if the Permittees have submitted a timely, complete application for renewal per WAC 173-303-806 and, through no fault of the Permittees, Ecology has not made a final Permit determination as set forth in WAC 173-303-840.

I.E.5 Need to Halt or Reduce Activity Not a Defense

It will not be a defense in the case of an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the Conditions of this Permit.

I.E.6 Duty to Mitigate

In the event of noncompliance with the Permit, the Permittees will take all reasonable steps to minimize releases to the environment, and will carry out such measures as are reasonable to minimize or correct adverse impacts on human health and the environment.

I.E.7 Proper Operation and Maintenance

The Permittees will at all times properly operate and maintain all facilities and systems of treatment and control, which are installed or used by the Permittees, to achieve compliance with the Conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of backup or auxiliary facilities, or similar systems only when necessary to achieve compliance with the Conditions of the Permit.

I.E.8 Duty to Provide Information

The Permittees will furnish to Ecology, within a reasonable time, any relevant information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittees will also furnish to Ecology, upon request, copies of records required to be kept by this Permit.

I.E.9 Inspection and Entry

The Permittees will allow Ecology, or authorized representatives, upon the presentation of Ecology credentials, to:

I.E.9.a During operating hours, and at all other reasonable times, enter and inspect the Facility or any unit or area within the Facility, where regulated activities are located or conducted, or where records must be kept under the Conditions of this Permit;

I.E.9.b Have access to, and copy, at reasonable times, any records that must be kept under the Conditions of this Permit;

I.E.9.c Inspect at reasonable times any portion of the Facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and,

I.E.9.d Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance, or as otherwise authorized by state law, as amended, for substances or parameters at any location.

I.E.10 Monitoring and Records

I.E.10.a Samples and measurements taken by the Permittees for the purpose of monitoring required by this Permit will be representative of the monitored activity. Sampling methods will be in accordance with WAC 173-303-110 or 40 CFR 261, unless otherwise specified in this Permit, or agreed to in writing by Ecology. Analytical methods will be as specified in the most recently published test procedure of the documents cited in WAC 173-303-110(3)(a) through (h), unless otherwise specified in this Permit, or agreed to in writing by Ecology.

I.E.10.b The Permittees will retain at the TSD unit(s), or other locations approved by Ecology, as specified in Parts III, V, and/or VI of this Permit, records of monitoring information required for compliance with this Permit, including calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of reports and records required by this Permit, and records of data used to complete the application for this Permit for a period of at least ten (10) years from the date of the sample, measurement, report, or application, unless otherwise required for certain

information by other Conditions of this Permit. This information may be retained on electronic media.

I.E.10.c The Permittees will retain at the Facility, or other approved location, records of all monitoring and maintenance records, copies of all reports and records required by this Permit, and records of all data used to complete the application for this Permit, which are not associated with a particular TSD unit, for a period of at least ten (10) years from the date of certification of completion of post-closure care, or corrective action for the Facility, whichever is later. This information may be retained on electronic media.

I.E.10.d The record retention period may be extended by request of Ecology at any time by notification, in writing, to the Permittees, and is automatically extended during the course of any unresolved enforcement action regarding this Facility to ten (10) years beyond the conclusion of the enforcement action.

I.E.10.e Records of monitoring information shall include:

I.E.10.e.i The date, exact place and time of sampling or measurements;

I.E.10.e.ii The individual who performed the sampling or measurements and their affiliation;

I.E.10.e.iii The dates the analyses were performed;

I.E.10.e.iv The individual(s) who performed the analyses and their affiliation;

I.E.10.e.v The analytical techniques or methods used; and,

I.E.10.e.vi The results of such analyses

I.E.11 Reporting Planned Changes

The Permittees will give notice to Ecology, as soon as possible, of any planned physical alterations, or additions to the Facility subject to this Permit. Such notice does not authorize any noncompliance with, or modification of, this Permit.

I.E.12 Certification of Construction or Modification

I.E.12.a The Permittees may not commence treatment, storage, or disposal of dangerous wastes in a new or modified portion of TSD units subject to this Permit until:

I.E.12.b The Permittees have submitted to Ecology, by certified mail, overnight express mail, or hand delivery, a letter signed by the Permittees, and a registered professional engineer, stating that the TSD unit has been constructed or modified in compliance with the Conditions of this Permit; and,

I.E.12.c Ecology has inspected the modified or newly constructed TSD unit, and finds that it is in compliance with the Conditions of this Permit; or

I.E.12.d Within fifteen (15) days of the date of receipt of the Permittees' letter, the Permittees have not received notice from Ecology of its intent to inspect, prior inspection is waived, and the Permittees may commence treatment, storage, and disposal of dangerous waste.

I.E.13 Anticipated Noncompliance

The Permittees will give at least thirty (30) days advance notice to Ecology of any planned changes in the Facility subject to this Permit, or planned activity which might result in noncompliance with Permit requirements.

If thirty (30) days advance notice is not possible, then the Permittees will give notice immediately after the Permittees become aware of the anticipated noncompliance. Such notice does not authorize any noncompliance with, or modification of, this Permit.

- 1 **I.E.14** Transfer of Permits
- 2 **I.E.14.a** This Permit may be transferred to a new owner/operator only if it is modified, or revoked
3 and reissued, pursuant to WAC 173-303-830(3)(b). Unit-specific portion may be
4 transferred to a new Co-operator as a Class ¹I modification with prior approval of the
5 Department's director.
- 6 **I.E.14.b** Before transferring ownership or operation of the Facility during its operating life, the
7 owner/operator will notify the new owner/operator in writing, of the requirements of
8 WAC 173-303-290(2), -600 and -806, and this Permit.
- 9 **I.E.15** Immediate Reporting
- 10 **I.E.15.a** The Permittees will verbally report to Ecology any release of dangerous waste or
11 hazardous substances, or any noncompliance with the Permit which may endanger human
12 health or the environment. Any such information will be reported immediately after the
13 Permittees become aware of the circumstances.
- 14 **I.E.15.b** The immediate verbal report will contain all the information needed to determine the
15 nature and extent of any threat to human health and the environment, including the
16 following:
- 17 **I.E.15.b.i** Name, address, and telephone number of the Permittee responsible for the release or
18 noncompliant activity;
- 19 **I.E.15.b.ii** Name, location, and telephone number of the unit at which the release occurred;
- 20 **I.E.15.b.iii** Date, time, and type of incident;
- 21 **I.E.15.b.iv** Name and quantity of material(s) involved;
- 22 **I.E.15.b.v** The extent of injuries, if any;
- 23 **I.E.15.b.vi** An assessment of actual or potential hazard to the environment and human health, where
24 this is applicable;
- 25 **I.E.15.b.vii** Estimated quantity of released material that resulted from the incident; and,
- 26 **I.E.15.b.viii** Actions which have been undertaken to mitigate the occurrence.
- 27 **I.E.15.c** The Permittees will report, in accordance with Permit Conditions I.E.15.a and I.E.15.b,
28 any information concerning the release, or unpermitted discharge, of any dangerous
29 waste or hazardous substances that may cause an endangerment to drinking water
30 supplies, or ground or surface waters, or of a release, or discharge of dangerous waste, or
31 hazardous substances, or of a fire or explosion at the Facility, which may threaten human
32 health or the environment. The description of the occurrence and its cause will include
33 all information necessary to fully evaluate the situation and to develop an appropriate
34 course of action.
- 35 **I.E.15.d** For any release or noncompliance not required to be reported to Ecology immediately, a
36 brief account must be entered within two (2) working days, into the TSD Operating
37 Record, for a TSD unit, or into the Facility Operating Record, inspection log, or separate
38 spill log, for non-TSD units. This account must include: the time and date of the release,
39 the location and cause of the release, the type and quantity of material released, and a
40 brief description of any response actions taken or planned.
- 41 **I.E.15.e** All releases, regardless of location of release, or quantity of release, will be controlled
42 and mitigated, if necessary, as required by WAC 173-303-145(3).

I.E.16 Written Reporting

Within fifteen (15) days after the time the Permittees become aware of the circumstances of any noncompliance with this Permit, which may endanger human health or the environment, the Permittees will provide to Ecology a written report. The written report will contain a description of the noncompliance and its cause (including the information provided in the verbal notification); the period of noncompliance including exact dates and times; the anticipated time noncompliance is expected to continue, if the noncompliance has not been corrected; corrective measures being undertaken to mitigate the situation, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

I.E.17 Manifest Discrepancy Report

I.E.17.a For dangerous waste received from outside the Facility, whenever a significant discrepancy in a manifest is discovered, the Permittees will attempt to reconcile the discrepancy. If not reconciled within fifteen (15) days of discovery, the Permittees will submit a letter report in accordance with WAC 173-303-370(4), including a copy of the applicable manifest or shipping paper, to Ecology.

I.E.17.b For dangerous waste which is being transported within the Facility (i.e., shipment of on-site generated dangerous waste), whenever a significant discrepancy in the shipping papers (see Permit Condition II.Q.1) is discovered, the Permittees will attempt to reconcile the discrepancy. If not reconciled within fifteen (15) days of discovery, the Permittees will note the discrepancy in the receiving unit's Operating Record.

I.E.18 Unmanifested Waste Report

The Permittees will follow the provisions of WAC 173-303-370 for the receipt of any dangerous waste shipment from off-site. The Permittees will also submit a report in accordance with WAC 173-303-390(1) to Ecology within fifteen (15) days of receipt of any unmanifested dangerous waste shipment received from off-site sources.

I.E.19 Other Noncompliance

The Permittees will report to Ecology all instances of noncompliance, not otherwise required to be reported elsewhere in this Permit, at the time the Annual Dangerous Waste Report is submitted.

I.E.20 Other Information

Whenever the Permittees become aware that they have failed to submit any relevant facts in a Permit application, closure plan, or post-closure plan, or submitted incorrect information in a Permit application, closure plan, or post-closure plan, or in any report to Ecology, the Permittees will promptly submit such facts or corrected information.

I.E.21 Reports, Notifications, and Submissions

All written reports, notifications or other submissions, which are required by this Permit to be sent, or given to the Director or Ecology, should be sent certified mail, overnight express mail, or hand delivered, to the current address and telephone number shown below. This address and telephone number may be subject to change.

1 Washington State Department of Ecology
2 Nuclear Waste Program
3 3100 Port of Benton Blvd
4 Richland, Washington 99354
5 Telephone: (509) 372-7950

6 Telephonic and oral reports/notifications also need to be provided to Ecology's Richland
7 Office.

8 Ecology will give the Permittees written notice of a change in address or telephone
9 number. It is the responsibility of the Permittees to ensure any required reports,
10 notifications, or other submissions are transmitted to the addressee listed in this
11 Condition. However, the Permittees will not be responsible for ensuring verbal and
12 written correspondence reaches a new address or telephone number until after their
13 receipt of Ecology's written notification.

14 **I.E.22 Annual Report**

15 The Permittees will comply with the annual reporting requirements of
16 WAC 173-303-390(2)(a) through (e), and (g).

17 **I.F Signatory Requirement**

18 All applications, reports, or information submitted to Ecology, which require
19 certification, will be signed and certified in accordance with WAC 173-303-810(12) and
20 (13). All other reports required by this Permit and other information requested by
21 Ecology will be signed in accordance with WAC 173-303-810(12).

22 **I.G Confidential Information**

23 The Permittees may declare as confidential any information required to be submitted by
24 this Permit, at the time of submission, in accordance with WAC 173-303-810(15).

25 **I.H Documents to be Maintained at Facility Site**

26 The Permittees will maintain at the Facility, or some other location approved by Ecology,
27 the following documents and amendments, revisions, and modifications to these
28 documents: (1) This Permit and all Attachments; and (2) The Hanford Facility Operating
29 Record.

30 All dangerous waste Part B permit applications, post closure permit applications, and
31 closure plan applications are maintained in the Administrative Record located at
32 2440 Stevens, Room 1101, Richland, WA.

33 Other approved locations: (1) 700 Area, (2) Locations within the City of Richland under
34 control of one or more of the Permittees, (3) Administrative Record locations within the
35 Stevens Center complex, (4) Consolidated Information Center at Washington State
36 University, Tri-Cities. (5) Archived records at the National Archives and Records
37 Administration (NARA), Pacific Alaska Region, 6125 Sand Point Way NE, Seattle,
38 Washington, 98115-7999.

39 These documents will be maintained for ten (10) years after post-closure care or
40 corrective action for the Facility, whichever is later, has been completed and certified as
41 complete.

PART II GENERAL FACILITY CONDITIONS

II.A Facility Contingency Plan

II.A.1 The Permittees will immediately carry out applicable provisions of the *Hanford Emergency Management Plan* as provided in Permit Attachment 4, pursuant to WAC 173-303-360(2), whenever there is an incident meeting the criteria of Permit Attachment 4, Section 4.2. Enforceable portions of Permit Attachment 4, *Hanford Emergency Management Plan* (DOE/RL-94-02) are identified in Permit Attachment 4, Appendix A.

II.A.2 The Permittees will comply with the requirements of WAC 173-303-350(4), as provided in the *Hanford Emergency Management Plan* (Permit Attachment 4). The *Hanford Emergency Management Plan* provides reference to the need for unit-specific contingency documentation. Unit-specific contingency documentation for Part III TSD units is included in Part III of this Permit. Unit-specific contingency documentation for Part V and VI TSD units required by this Permit condition is maintained in the Hanford Facility Operating Record, Unit-Specific files.

II.A.3 The Permittees will review and amend, if necessary, the applicable portions of the *Hanford Emergency Management Plan*, as provided in Permit Attachment 4, pursuant to WAC 173-303-350(5), and in accordance with the provisions of WAC 173-303-830(4). The Permittees will be able to demonstrate how Amendments to the applicable portions are controlled. The plan will be amended within a period of time agreed upon by Ecology.

II.A.4 The Permittees will comply with the requirements of WAC 173-303-350(3) and –360(1) concerning the emergency coordinator, except the names and home telephone numbers will be on file with the single point-of-contact, phone number (509) 373-3800 or 375-2400 (for PNNL units) as described in the *Hanford Emergency Management Plan*.

II.B Preparedness and Prevention

II.B.1 The Permittees will equip the Facility with the equipment specified in WAC 173-303-340(1) as specified in the *Hanford Emergency Management Plan* (Permit Attachment 4). Unit-specific preparedness and prevention provisions are included in Parts III, V, and/or VI of this Permit.

II.B.2 The Permittees will test and maintain the equipment specified in Permit Condition II.B.1 as necessary to assure proper operation in the event of emergency.

II.B.3 The Permittees will maintain access to communications or alarms pursuant to WAC 173-303-340(2), as provided in the *Hanford Emergency Management Plan* (Permit Attachment 4) and unit-specific contingency plans.

II.B.4 The Permittees will comply with WAC 173-303-340(4) and WAC 173-303-355(1) pertaining to arrangements with local authorities.

II.B.5 Based on the arrangements with local authorities required by WAC 173-303-340(4) documented in Permit Attachment 4, Table 3-1, the Permittees will maintain the Memorandums of Understanding to comply with WAC 173-303-350(4)(b). The Hanford Facility Memorandums of Understanding with local authorities provides emergency planning and coordination equivalent to submittal of the contingency plan to local authorities

II.C Personnel Training

II.C.1 The Permittees will conduct personnel training as required by WAC 173-303-330. The Permittees will maintain documents in accordance with WAC 173-303-330(2) and (3). Training records may be maintained in the Hanford Facility Operating Record, or on electronic data storage.

II.C.2 All Hanford Facility personnel will receive general Facility training within six (6) months of hire. This training will provide personnel with orientation of dangerous waste management activities being conducted at the Hanford Facility. This training will include:

II.C.2.a Description of emergency signals and appropriate personnel response;

II.C.2.b Identification of contacts for information regarding dangerous waste management activities;

II.C.2.c Introduction to waste minimization concepts;

II.C.2.d Identification of contact(s) for emergencies involving dangerous waste; and

II.C.2.e Familiarization with the applicable portions of the *Hanford Emergency Management Plan*.

II.C.3 Description of training plans for personnel assigned to TSD units subject to this Permit are delineated in the unit-specific Chapters in Parts III, V, and/or VI of this Permit.

II.C.4 The Permittees will provide the necessary training to non-Facility personnel (i.e., visitors, sub-contractors), as appropriate, for the locations of such personnel, and the activities that will be undertaken. At a minimum, this training will describe dangerous waste management hazards at the Facility.

II.D Waste Analysis

II.D.1 All waste analyses required by this Permit will be conducted in accordance with a written waste analysis plan (WAP), or sampling and analysis plan (SAP). Operating TSD units will have a WAP, which will be approved through incorporation of the TSD unit into Part III of this Permit. Closing TSD units, and units in post-closure, should have a SAP and, if necessary, a WAP, which will be approved through incorporation of the TSD unit into Part V and/or VI of this Permit.

II.D.2 Until a WAP is implemented in accordance with Permit Condition II.D.1., any unit(s) identified in Parts III, V, and/or VI of this Permit, without a unit-specific WAP approved by Ecology, will not treat, store, or dispose of dangerous waste, unless specified otherwise by Ecology in writing.

II.D.3 Each TSD unit WAP will include:

II.D.3.a The parameters for which each dangerous waste will be analyzed, and the rationale for selecting these parameters; (i.e., how analysis for these parameters will provide sufficient information on the waste properties to comply with WAC 173-303-300(1), (2), (3), and (4);

II.D.3.b The methods of obtaining or testing for these parameters;

II.D.3.c The methods for obtaining representative samples of wastes for analysis (representative sampling methods are discussed in WAC 173-303-110(2);

- 1 **II.D.3.d** The frequency with which analysis of a waste will be reviewed, or repeated, to ensure
2 that the analysis is accurate and current;
- 3 **II.D.3.e** The waste analyses which generators have agreed to supply;
- 4 **II.D.3.f** Where applicable, the methods for meeting the additional waste analysis requirements for
5 specific waste management methods, as specified in WAC 173-303-140(4)(b),
6 173-303-395(1), 173-303-630 through 173-303-670, and 40 CFR 264.1034, 264.1063,
7 284(a), and 268.7, for final status facilities;
- 8 **II.D.3.f.i** For off-site facilities, the procedures for confirming that each dangerous waste received
9 matches the identity of the waste specified on the accompanying manifest, or shipping
10 paper. This includes at least:
- 11 **II.D.3.f.i.a** The procedure for identifying each waste movement at the Facility; and,
- 12 **II.D.3.f.i.b** The method for obtaining a representative sample of the waste to be identified, if the
13 identification method includes sampling.
- 14 **II.D.3.f.ii** For surface impoundments exempted from Land Disposal Restrictions (LDR) under
15 40 CFR 268.4(a), incorporated by reference in WAC 173-303-140(2), the procedures and
16 schedules for:
- 17 **II.D.3.f.iii** The sampling of impoundment contents;
- 18 **II.D.3.f.iv** The analysis of test data; and
- 19 **II.D.3.f.v** The annual removal of residues that are not delisted under 40 CFR 260.22, or which
20 exhibit a characteristic of hazardous waste and either;
- 21 **II.D.3.f.v.a** Do not meet applicable treatment standards of 40 CFR Part 268, Subpart D; or
- 22 **II.D.3.f.v.b** Where no treatment standards have been established:
- 23 **II.D.3.f.v.b.1** Such residues are prohibited from land disposal under 40 CFR 268.32, or RCRA
24 Section 3004(d); or
- 25 **II.D.3.f.v.b.2** Such residues are prohibited from land disposal under 40 CFR 268.33(f); and
- 26 **II.D.4** Should waste analysis be required by this Permit at a location on the Facility, other than
27 at a TSD unit, a SAP will be maintained by the Permittees, and made available upon
28 request from Ecology. Any SAP required by this Permit, not associated with a particular
29 TSD unit, will include the elements of Permit Conditions II.D.3.a.
- 30 **II.E** **Quality Assurance/Quality Control**
- 31 **II.E.1** All WAPs and SAPs required by this Permit will include a quality assurance/quality
32 control (QA/QC) plan, or equivalent, to document all monitoring procedures to ensure
33 that all information, data, and resulting decisions are technically sound, statistically valid,
34 and properly documented in accordance with HFFACO Action Plan §6.5, Quality
35 Assurance, and reported/made available in accordance with HFFACO Action Plan §9.6,
36 Data Access and Delivery Requirements.
- 37 **II.E.2** The level of QA/QC for the collection, preservation, transportation, and analysis of each
38 sample required for implementation of this Permit may be based upon an Ecology-
39 approved DQO for the sample. These DQOs will be approved by Ecology in writing or
40 through incorporation of unit plans and Permits into Parts III, V, and/or VI of this Permit.

II.F Ground Water and Vadose Zone Monitoring

The Permittees will comply with the ground water monitoring requirements of WAC 173-303-645. This Condition will apply only to those wells the Permittees use for the ground water monitoring programs applicable to the TSD units incorporated into Parts III, V, and/or VI of this Permit. Where releases from TSD units subject to this Permit have been documented or confirmed by investigation, or where vadose zone monitoring is proposed for integration with ground water monitoring, the Permittees will evaluate the applicability of vadose zone monitoring. The Permittees will consult with Ecology regarding the implementation of these requirements. If agreed to by Ecology, integration of ground water and vadose zone monitoring, for reasons other than this Permit, may be accommodated by this Permit. Results from other investigation activities will be used whenever possible to supplement and/or replace sampling required by this Permit.

II.F.1 Purgewater Management

Purgewater will be handled in accordance with the requirements set forth in permit Attachment 10, *Purgewater Management Plan*.

II.F.2 Well Inspection and Maintenance

II.F.2.a The Permittees will inspect the integrity of active resource protection wells as defined by WAC 173-160-410(13), subject to this Permit, at least once every five (5) years as specified in the *Hanford Well Maintenance Inspection Plan* (Permit Attachment 8). These inspections will be recorded in the Operating Record.

II.F.2.b The Permittees will evaluate resource protection wells subject to this Permit according to the *Hanford Well Maintenance Inspection Plan* (Permit Attachment 8) and the *Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and CERCLA*, June 1990 (Permit Attachment 7). The Permittees will submit a permit modification request to Ecology to decommission or maintain wells as necessary to ensure compliance with WAC 173-303-645(8)(c). This permit modification request will include a schedule of compliance, which may incorporate by reference applicable schedule(s) in HFFACO Milestone M-24. For Wells to be decommissioned, this permit modification must also include a request for installation of replacement wells, if necessary, to ensure compliance with WAC 173-303-645 requirements.

II.F.2.c Ecology will receive a notice of intent (NOI) in writing at least seventy-two (72) hours before the Permittees decommission (excluding maintenance activities) any well subject to this Permit.

II.F.2.d For wells subject to this Permit, the Permittees will achieve full compliance with Chapter 173-160 WAC and Chapter 18.104 RCW by replacing non-compliant wells subject to the permit with new wells under the schedule in HFFACO Milestone M-24, as amended, incorporated by reference into this Permit.

II.F.3 Well Construction

All wells constructed pursuant to this Permit will be constructed in compliance with Chapter 173-160 WAC.

II.F.4 Annual Groundwater Report Due Date

The due date for the annual groundwater monitoring data (report) required in WAC 173-303-390, is changed from March 1 to July 31 of each year.

II.G Siting Criteria

The Permittees will comply with the applicable notice of intent and siting criteria of WAC 173-303-281 and WAC 173-303-282, respectively.

II.H Recordkeeping and Reporting

The provisions of WAC 173-303-620 are not applicable to the Hanford Facility because the USDOE is both owner and operator of the Hanford Facility.
WAC 173-303-620(1)(c).

II.I Facility Operating Record

II.I.1 The Permittees will maintain a written Facility Operating Record until ten (10) years after post-closure, or corrective action is complete and certified for the Facility, whichever is later. Except as specifically provided otherwise in this Permit, the Permittees will also record all information referenced in this Permit in the Facility Operating Record within seven (7) working days after the information becomes available. A TSD unit-specific Operating Record will be maintained for each TSD unit at a location identified in Parts III, V, and VI of this Permit. This information may be maintained on electronic media. Each TSD unit-specific Operating Record will be included by reference in the Facility Operating Record. Information required in each TSD unit-specific Operating Record is identified on a unit-by-unit basis in Part III, V, or VI of this Permit. The Facility Operating Record will include, but not be limited to, the following information.

II.I.1.a A description of the system(s) currently utilized to identify and map solid waste management units and their locations. The description of the system(s) is required to include an identification of on-site access to the system's data, and an on-site contact name and telephone number. In addition to, or as part of, this system(s), the Permittees will also maintain a list identifying active ninety (90)-day waste storage areas, and dangerous waste satellite accumulation areas and their locations. The list will identify the location, the predominant waste types managed at the area, and a date identifying when the list was compiled. Maps will be provided by the Permittees upon request by Ecology;

II.I.1.b Records and results of waste analyses required by WAC 173-303-300;

II.I.1.c An identification of the system(s) currently utilized to generate Occurrence Reports. The identification of the system(s) is required to include a description, an identification of an on-site location of hard-copy Occurrence Reports, an identification of on-site access to the system's data, and an on-site contact name and telephone number;

II.I.1.d Copies of all unmanifested waste reports;

II.I.1.e The *Hanford Emergency Management Plan*, as well as summary reports, and details of all incidents that require implementing the contingency plan, as specified in WAC 173-303-360(2)(k);

II.I.1.f An identification of the system(s) currently utilized and being developed to record personnel training records and to develop training plans. The identification of the system(s) is required to include a description, an identification of on-site access to the system's data, and an on-site contact name and telephone number;

II.I.1.g Preparedness and prevention arrangements made pursuant to WAC 173-303-340(4) and documentation of refusal by state or local authorities that have declined to enter into agreements in accordance with WAC 173-303-340(5);

II.I.1.h Reserved Condition;

- 1 **II.I.1.i** Reserved Condition;
- 2 **II.I.1.j** Documentation (e.g., waste profile sheets) of all dangerous waste transported to or from
3 any TSD unit subject to this Permit. This documentation will be maintained in the
4 receiving unit's Operating Record from the time the waste is received;
- 5 **II.I.1.k** An identification of the system(s) currently utilized to cross-reference waste locations to
6 specific manifest document numbers. The identification of the system(s) is required to
7 include a thorough description, an identification of an on-site location of a hard-copy data
8 report, an identification of on-site access to the system's data, and an on-site contact
9 name and telephone number;
- 10 **II.I.1.l** Reserved Condition;
- 11 **II.I.1.m** Annual Reports required by this Permit;
- 12 **II.I.1.n** An identification of all systems currently utilized to record monitoring information,
13 including all calibration and maintenance records, and all original strip chart recordings
14 for continuous monitoring instrumentation. The identification of systems will include a
15 description of the systems. The descriptions will include a confirmation that the criteria
16 of Permit Condition I.E.10 is provided by the utilization of the system. The identification
17 of the systems will also include an identification of on-site access to the system's data, an
18 on-site contact name and telephone number;
- 19 **II.I.1.o** Reserved Condition;
- 20 **II.I.1.p** Summaries of all records of ground water corrective action required by
21 WAC 173-303-645;
- 22 **II.I.1.q** An identification of the system(s) currently being utilized and being developed to
23 evaluate compliance with the Conditions of this Permit and with Chapter 173-303 WAC.
24 The identification of the system(s) will include a description of the system(s), an
25 identification of on-site access to the system's data, and an on-site contact name and
26 telephone number. The description of the system(s) will also include a definition of
27 which portion(s) of the system(s) is accessible to Ecology;
- 28 **II.I.1.r** All deed notifications required by this Permit (to be included by reference);
- 29 **II.I.1.s** All inspection reports required by this Permit; and
- 30 **II.I.1.t** All other reports as required by this Permit, including design change documentation and
31 nonconformance documentation.
- 32 **II.J** **Facility Closure**
- 33 **II.J.1** Final closure of the Hanford Facility will be achieved when closure activities for all TSD
34 units have been completed, as specified in Parts III, IV, V, or VI of this Permit.
35 Completion of these activities will be documented using either certifications of closure,
36 in accordance with WAC 173-303-610(6), or certifications of completion of post-closure
37 care, in accordance with WAC 173-303-610(11).
- 38 **II.J.2** The Permittees will close all TSD units as specified in Parts III, V, and/or VI of this
39 Permit.
- 40 **II.J.3** The Permittees will submit a written notification of, or request for, a Permit modification
41 in accordance with the provisions of WAC 173-303-610(3)(b), whenever there is a
42 change in operating plans, facility design, or the approved closure plan. The written
43 notification or request must include a copy of the amended closure plan for review, or
44 approval, by Ecology.

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- 1 **II.J.4** The Permittees will close the Facility in a manner that:
- 2 **II.J.4.a** Minimizes the need for further maintenance;
- 3 **II.J.4.b** Controls, minimizes or eliminates, to the extent necessary to protect human health and
4 the environment, post-closure escape of dangerous waste, dangerous constituents,
5 leachate, contaminated run-off, or dangerous waste decomposition products, to the
6 ground, surface water, ground water, or the atmosphere; and
- 7 **II.J.4.c** Returns the land to the appearance and use of surrounding land areas to the degree
8 possible, given the nature of the previous dangerous waste activity.
- 9 **II.J.4.d** Meets the requirements of WAC 173-303-610(2)(b).
- 10 **II.K** **Soil/Ground Water Closure Performance Standards**
- 11 **II.K.1** For purposes of Permit Condition II.K, the term "clean closure" shall mean the status of a
12 TSD unit at the Facility which has been closed to the cleanup levels prescribed by
13 WAC 173-303-610(2)(b), provided certification of such closure has been accepted by
14 Ecology.
- 15 **II.K.2** The Permittees may close a TSD unit to background levels as defined in Ecology
16 approved Hanford Site Background Documents, if background concentrations exceed the
17 levels prescribed by Permit Condition II.K.1. Closure to these levels, provided the
18 Permittees comply with all other closure requirements for a TSD unit as identified in
19 Parts III, V, and/or VI of this Permit, shall be deemed as "clean closure".
- 20 **II.K.3** Except for those TSD units identified in Permit Conditions II.K.1, II.K.2, or II.K.4, the
21 Permittees may close a TSD unit to a cleanup level specified under Method C of
22 Chapter 173-340 WAC. Closure of a TSD unit to these levels, provided the Permittees
23 comply with all other closure requirements for the TSD unit as specified in Parts III, V,
24 and/or VI of the Permit, and provided the Permittees comply with Permit
25 Conditions II.K.3.a through II.K.3.c, shall be deemed as a "modified closure".
- 26 **II.K.3.a** For "modified closures", the Permittees shall provide institutional controls in accordance
27 with WAC 173-340-440 which restricts access to the TSD unit for a minimum of
28 five (5) years following completion of closure. The specific details and duration of
29 institutional controls shall be specified in Parts III, V, and/or VI of this Permit for a
30 particular TSD unit.
- 31 **II.K.3.b** For "modified closures", the Permittees shall provide periodic assessments of the TSD
32 unit to determine the effectiveness of the closure. The specific details of the periodic
33 assessments shall be specified in Parts III, V, and/or VI of this Permit. The periodic
34 assessments shall include, as a minimum, a compliance monitoring plan in accordance
35 with WAC 173-340-410 that will address the assessment requirements on a unit-by-unit
36 basis. At least one (1) assessment activity shall take place after a period of five (5) years
37 from the completion of closure, which will demonstrate whether the soils and ground
38 water have been maintained at or below the allowed concentrations as specified in
39 Parts III, V, or VI of this Permit. Should the required assessment activities identify
40 contamination above the allowable limits as specified in Parts III, V, and/or VI, the TSD
41 unit must be further remediated, or the requirements of II.K.4 must be followed. Should
42 the required assessment activities demonstrate that contamination has diminished, or
43 remained the same, the Permittees may request that Ecology reduce, or eliminate the
44 assessment activities and/or institutional controls.
- 45 **II.K.3.c** For "modified closures", the Permittees shall specify the particular activities required by
46 this Condition in a Post-Closure Permit application.

II.K.4 Any TSD unit for which Permit Conditions II.K.1, II.K.2, or II.K.3, are not chosen as the closure option, closing the TSD unit as a landfill may be selected. Closure and post-closure of the TSD unit as a landfill, must follow the procedures and requirements specified in WAC 173-303-610.

II.K.5 The cleanup option selected shall be specified in Parts III, V, and/or VI of this Permit, and shall be chosen with consideration of the potential future site use for that TSD unit/area. Definitions contained within Chapter 173-340 WAC shall apply to Permit Condition II.K. Where definitions are not otherwise provided by this Permit, the HFFACO, or Chapter 173-303 WAC.

II.K.6 Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection.

II.K.7 Where agreed to by Ecology, integration of other statutorily or regulatory mandated cleanups may be accommodated by this Permit. Results from other cleanup investigation activities shall be used whenever possible to supplement and/or replace TSD unit closure investigation activities. All, or appropriate parts of, multipurpose cleanup and closure documents can be incorporated into this Permit through the Permit modification process. Cleanup and closures conducted under any statutory authority, with oversight by either Ecology or the EPA, which meet the equivalent of the technical requirements of Permit Conditions II.K.1 through II.K.4, may be considered as satisfying the requirements of this Permit.

II.L Design and Operation of the Facility

II.L.1 Proper Design and Construction

The Permittees will design, construct, maintain, and operate the Facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous substances to air, soil, ground water, or surface water, which could threaten human health, or the environment.

II.L.2 Design Changes, Nonconformance, and As-Built Drawings

II.L.2.a After completing the Permit modification process in Permit Condition I.C.3, the Permittees will conduct all construction subject to this Permit in accordance with the approved designs, plans and specifications that are required by this Permit, unless authorized otherwise in Permit Conditions II.L.2.b or II.L.2.c. For purposes of Permit Conditions II.L.2.b and II.L.2.c, an Ecology construction inspector, or TSD unit manager, are designated representatives of Ecology.

II.L.2.b During construction of a project subject to this Permit, changes to the approved designs, plans and specifications will be formally documented. All design change documentation will be maintained in the TSD unit-specific Operating Record and will be made available to Ecology upon request or during the course of an inspection. The Permittees will provide copies of design change documentation affecting any critical system to Ecology within five (5) working days of initiating the design change documentation. Identification of critical systems will be included by the Permittees in each TSD unit-specific dangerous waste Permit application, closure plan or Permit modification, as appropriate. Ecology will review a design change documentation modifying a critical system, and inform the Permittees in writing within two (2) working days, whether the

proposed design change documentation, when issued, will require a Class 1, 2, or 3 Permit modification. If after two (2) working days Ecology has not responded, it will be deemed as acceptance of the design change documentation by Ecology.

II.L.2.c

During construction of a project subject to this Permit, any work completed which does not meet or exceed the standards of the approved design, plans and specifications will be formally documented with nonconformance documentation. All nonconformance documentation will be maintained in the TSD unit-specific Operating Record and will be made available to Ecology upon request, or during the course of an inspection. The Permittees will provide copies of nonconformance documentation affecting any critical system to Ecology within five (5) working days after identification of the nonconformance. Ecology will review nonconformance documentation affecting a critical system and inform the Permittees in writing, within two (2) working days, whether a Permit modification is required for any nonconformance, and whether prior approval is required from Ecology before work proceeds, which affects the nonconforming item. If Ecology does not respond within two (2) working days, it will be deemed as acceptance and no Permit modification will be required.

II.L.2.d

Upon completion of a construction project subject to this Permit, the Permittees will produce as-built drawings of the project which incorporate the design and construction modifications resulting from all project design change documentation and nonconformance documentation, as well as modifications made pursuant to WAC 173-303-830. The Permittees will place the drawings into the Operating Record within twelve (12) months of completing construction, or within an alternate period of time specified in a unit-specific Permit Condition in Part III or V of this Permit.

II.L.2.e

Facility Compliance

The Permittees in receiving, storing, transferring, handling, treating, processing, and disposing of dangerous waste, will design, operate, and/or maintain the Facility in compliance with all applicable federal, state, and local laws and regulations.

II.M**Security**

The Permittees will comply with the security provisions of WAC 173-303-310. The Permittees may comply with the requirements of WAC 173-303-310(2) on a unit-by-unit basis.

II.N**Receipt of Dangerous Wastes Generated Off-Site****II.N.1**

Receipt of Off-Site Waste

The Permittees will comply with Permit Conditions II.N.2 and II.N.3 for any dangerous wastes which are received from sources outside the United States, or from off-site generators.

II.N.2

Waste from Sources Outside the United States

The Permittees will meet the requirements of WAC 173-303-290(1) for waste received from outside the United States.

II.N.3

Notice to Generator

For waste received from off-site sources (except where the owner/operator is also the generator), the Permittees will inform the generator in writing that they have the appropriate Permits for, and will accept, the waste the generator is shipping, as required by WAC 173-303-290(3). The Permittees will keep a copy of this written notice as part of the TSD unit-specific Operating Record.

II.O General Inspection Requirements

II.O.1 The Permittees will inspect the Facility to prevent malfunctions and deterioration, operator errors, and discharges, which may cause or lead to the release of dangerous waste constituents to the environment, or threaten human health. Inspections must be conducted in accordance with the provisions of WAC 173-303-320(2). In addition to the TSD unit inspections specified in Parts III, V, and/or VI, the following inspections will also be conducted:

II.O.1.a The 100, 200 East, 200 West, 300, and 400 areas will be inspected annually.

II.O.1.b The Permittees will inspect the banks of the Columbia River, contained within the Facility boundary, once a year. The inspection will be performed from the river, by boat, and the inspectors will follow the criteria in Permit Condition II.O.1.c.

II.O.1.c The Permittees will visually inspect the areas identified in Permit Conditions II.O.1.a and II.O.1.b for malfunctions, deterioration, operator errors, and discharges which may cause or lead to the release of dangerous waste constituents to the environment, or that threaten human health. Specific items to be noted are as follows:

II.O.1.c.i Remains of waste containers, labels, or other waste management equipment;

II.O.1.c.ii Solid waste disposal sites not previously identified for remedial action;

II.O.1.c.iii Uncontrolled waste containers (e.g., orphan drums);

II.O.1.c.iv Temporary or permanent activities that could generate an uncontrolled waste form; and

II.O.1.c.v Unpermitted waste discharges.

II.O.1.d The Permittees will notify Ecology at least seven (7) days prior to conducting these inspections in order to allow representatives of Ecology to be present during the inspections.

II.O.2 If the inspection by the Permittees, conducted pursuant to Permit Condition II.O.1, reveals any problems, the Permittees will take remedial action on a schedule agreed to by Ecology.

II.O.3 The inspection of high radiation areas will be addressed on a case-by-case basis in either Part III of this Permit, or prior to the inspections required in Permit Condition II.O.1.

II.P Manifest System

II.P.1 The Permittees will comply with the manifest requirements of WAC 173-303-370 for waste received from off-site and WAC 173-303-180 for waste shipped off-site.

II.P.2 Transportation of dangerous wastes along roadways, if such routes are not closed to general public access at the time of transport, can be manifested pursuant to an alternate tracking system as allowed by WAC 173-303-180(5). The alternate tracking system can be a paper system or an electronic system. The roadways addressed by this condition are a public or private right-of-way within or along the border of contiguous property where the movement is under control of the USDOE.

The alternate tracking system will consist of documentation between the offering Hanford Facility location and the receiving Hanford Facility location containing the following information:

II.P.2.a Hanford Facility offeror name, location, and telephone number;

II.P.2.b Hanford Facility receiver name, location, and telephone number;

Part I Standard and Part II General Facility Conditions

- 1 **II.P.2.c** Description of waste;
- 2 **II.P.2.d** Number and type of containers;
- 3 **II.P.2.e** Total quantity of waste;
- 4 **II.P.2.f** Unit volume/weight;
- 5 **II.P.2.g** Dangerous waste number(s) or U.S. Department of Transportation hazard class; and
- 6 **II.P.2.h** Special handling instructions including emergency contacts.
- 7 **II.P.3** The Hanford Facility offeror and receiver will resolve any discrepancies of information
- 8 found related to Permit Conditions II.P.2.a through II.P.2.h.
- 9 **II.P.4** If the discrepancies cannot be resolved at the Hanford Facility receiving location, a new
- 10 Hanford Facility receiver location will be agreed upon, or the dangerous waste will be
- 11 returned to the offeror location. The documentation accompanying the movement of
- 12 dangerous waste will be updated to reflect the new receiving location.
- 13 **II.Q On-Site Transportation**
- 14 **II.Q.1** Documentation must accompany any on-site dangerous waste which is transported to or
- 15 from any TSD unit subject to this Permit, through or within the 600 Area, unless the
- 16 roadway is closed to general public access at the time of shipment. Waste transported by
- 17 rail or by pipeline is exempt from this Condition. This documentation will include the
- 18 following information, unless other unit-specified provisions are designated in Part III or
- 19 V of this Permit:
- 20 **II.Q.1.a** Generator's name, location, and telephone number;
- 21 **II.Q.1.b** Receiving TSD unit's name, location, and telephone number;
- 22 **II.Q.1.c** Description of waste;
- 23 **II.Q.1.d** Number and type of containers;
- 24 **II.Q.1.e** Total quantity of waste;
- 25 **II.Q.1.f** Unit volume/weight;
- 26 **II.Q.1.g** Dangerous waste number(s); and
- 27 **II.Q.1.h** Any special handling instructions.
- 28 **II.Q.2** All non-containerized solid, dangerous waste transported to or from TSD units, subject to
- 29 this Permit, will be covered to minimize the potential for material to escape during
- 30 transport.
- 31 **II.R Equivalent Materials**
- 32 **II.R.1** The Permittees may substitute an equivalent or superior product for any equipment or
- 33 materials specified in this Permit. Use of equivalent or superior products will not be
- 34 considered a modification of this Permit. A substitution will not be considered equivalent
- 35 unless it is at least as effective as the original equipment or materials in protecting human
- 36 health and the environment.
- 37 **II.R.2** The Permittees will place in the Operating Record (within seven [7] days after the change
- 38 is put into effect) the substitution documentation, accompanied by a narrative
- 39 explanation, and the date the substitution became effective. Ecology may judge the
- 40 soundness of the substitution.

II.R.3 If Ecology determines that a substitution was not equivalent to the original, it will notify the Permittees that the Permittees' claim of equivalency has been denied, of the reasons for the denial, and that the original material or equipment must be used. If the product substitution is denied, the Permittees will comply with the original approved product specification, or find an acceptable substitution.

II.S Land Disposal Restrictions (LDR)

Unless specifically identified otherwise in the HFFACO, the Permittees will comply with all LDR requirements as set forth in WAC 173-303-140.

II.T Access and Information

To the extent that work required by this Permit must be done on property not owned or controlled by the Permittees, the Permittees must utilize their best efforts to obtain access and information at these locations.

II.U Mapping of Underground Piping

II.U.1 Reserved.

II.U.2 Reserved.

II.U.3 The Permittees will maintain piping maps for existing, newly identified, and/or new dangerous waste underground pipelines (including active, inactive, and abandoned pipelines, which contain or contained dangerous waste subject to the provisions of Chapter 173-303 WAC) at the Hanford Facility. The maps will identify the origin, destination, direction of flow, size, depth and type (i.e., reinforced concrete, stainless steel, cast iron, etc.), of each pipe, and the location of their diversion boxes, valve pits, seal pots, catch tanks, receiver tanks, and pumps, and utilize Washington State Plane Coordinates, NAD 83(91), meters. If the type of pipe material is not documented on existing drawings, the most probable material type will be provided. The maps will also identify whether the pipe is active, inactive, or abandoned. The age of all pipes requiring identification pursuant to this Condition will be documented in an Attachment to the submittal. If the age cannot be documented, an estimate of the age of the pipe will be provided based upon best engineering judgment. These maps need not include the pipes within a fenced tank farm or within a building/structure. These maps will be compiled using documented QA/QC control methods and procedures outlined in DOE/RL-96-50, *Hanford Facility RCRA Permit Mapping and Marking of Dangerous Waste Underground Pipelines Report*, September 1996. These maps and any Attachments will be maintained in the Facility Operating Record and be updated annually as required by Permit Condition II.U.4.

II.U.4 Permittees will maintain current all maps required by Permit Condition II.U.3. These maps will be updated to incorporate new or revised information available by March 30th of each year. By September 30th of each year, the Permittees will submit to Ecology a list of maps that have been updated. The updated maps (including any Attachments) and the annual list submitted to Ecology will be maintained in the Facility Operating Record.

II.V Marking of Underground Piping

The Permittees will maintain marking of underground pipelines located outside the 200 East, 200 West, 300, 400, 100N, and 100K Areas. These pipelines will be marked at the point they pass beneath an area fence, at their origin and destination, at any point they cross an improved road, and every 100 meters along the pipeline corridor where practicable. The markers will be labeled with a sign that reads "Buried Dangerous Waste Pipe" and will be visible from a distance of fifteen (15) meters.

II.W Other Permits and/or Approvals

II.W.1 The Permittees will be responsible for obtaining all other applicable federal, state, and local permits authorizing the development and operation of the Facility. To the extent that work required by this Permit must be done under a permit and/or approval pursuant to other regulatory authority, the Permittees will use their best efforts to obtain such permits.

II.W.2 All other permits related to dangerous waste management activities are severable and enforceable through the permitting authority under which they are issued.

II.W.3 All air emissions from units subject to this Permit will comply with all applicable state and federal regulations pertaining to air emission controls, including but not limited to, Chapter 173-400 WAC, General Regulations for Air Pollution Sources; Chapter 173-460 WAC, Controls for New Sources of Toxic Air Pollutants; and Chapter 173-480 WAC, Ambient Air Quality Standards and Emission Limits for Radionuclides.

II.X Schedule Extensions

II.X.1 The Permittees will notify Ecology in writing, as soon as possible, of any deviations or expected deviations, from the schedules of this Permit. The Permittees will include with the notification all information supporting their claim that they have used best efforts to meet the required schedules. If Ecology determines that the Permittees have made best efforts to meet the schedules of this Permit, Ecology will notify the Permittees in writing by certified mail, that the Permittees have been granted an extension. Such an extension will not require a Permit modification under Permit Condition I.C.3. Should Ecology determine that the Permittees have not made best efforts to meet the schedules of this Permit, Ecology may take such action as deemed necessary.

Copies of all correspondence regarding schedule extensions will be kept in the Operating Record.

II.X.2 Any schedule extension granted through the approved change control process identified in the HFFACO will be incorporated into this Permit. Such a revision will not require a Permit modification under Permit Condition I.C.3.

II.Y Corrective Action

In accordance with WAC 173-303-646 and WAC 173-303-815(2)(b)(ii), the Permittees must conduct corrective action, as necessary to protect human health and the environment, for releases of dangerous waste and dangerous constituents from solid waste management units and areas of concern at the Facility, including releases that have migrated beyond the Facility boundary. The Permittees may be required to implement measures within the Facility to address releases, which have migrated beyond the Facility's boundary. As specified in permit conditions II.Y.1.g, II.Y.2.a.iii, and II.Y.2.a.ii, the Permittee's right to challenge Ecology's authority to impose corrective action with respect to radionuclides, CERCLA Past Practice (CPP) Units (as identified under Permit Condition II.Y.2.a) and selected solid waste management units not covered by the HFFACO at property currently subleased to US Ecology, Inc. (as identified under Permit Condition II.Y.3.a.i), is reserved until such time as Ecology chooses to impose corrective action in accordance with the permit modification procedures of WAC 173-303-830.

II.Y.1 Compliance with Chapter 173-340 WAC

In accordance with WAC 173-303-646, the Permittee must conduct corrective action "as necessary to protect human health and the environment". To ensure that corrective action will be conducted as necessary to protect human health and the environment, except as provided in Permit Condition II.Y.2, the Permittee must conduct corrective action in a manner consistent with the following provisions of Chapter 173-340 WAC:

II.Y.1.a As necessary to select a cleanup action in accordance with WAC 173-340-360 and WAC 173-340-350 State Remedial Investigation and Feasibility Study.

II.Y.1.b WAC 173-340-360 Selection of Cleanup Actions.

II.Y.1.c WAC 173-340-400 Cleanup Actions.

II.Y.1.d WAC 173-340-410 Compliance Monitoring Requirements.

II.Y.1.e WAC 173-340-420 Periodic Site Reviews.

II.Y.1.f WAC 173-340-440 Institutional Controls.; and

II.Y.1.g WAC 173-340-700 through -760 Cleanup Standards, except that to the extent that Ecology seeks to impose corrective action with respect to radionuclides regulated under the provisions of the Atomic Energy Act, as amended, 42 U.S.C. § 2011 et.seq. (AEA), the Permittees may challenge Ecology's authority to impose such corrective action through a timely appeal of the Permit modification issued by Ecology without argument from Ecology that such right has been waived by a failure to fully litigate that issue through an appeal taken within thirty (30) days of the issuance of this Permit, and without argument from the Permittees that such requirement fails to satisfy a cause for Permit modification under WAC 173-303-830(3)(a).

II.Y.2 Acceptance of Work Under Other Authorities or Programs and Integration with the HFFACO.

Corrective action is necessary to protect human health and the environment for all units identified in Appendix B and Appendix C of the HFFACO. Notwithstanding Permit Condition II.Y.1, work under other cleanup authorities or programs, including work under the HFFACO, may be used to satisfy corrective action requirements, provided it protects human health and the environment.

II.Y.2.a For past practice units identified in Appendix C of the HFFACO, as amended, as CERCLA Past Practice (CPP) Units, Ecology accepts work under the HFFACO, as amended, and under the CERCLA program, as satisfying corrective action requirements to the extent provided for in, and subject to the reservations and requirements of, Permit Conditions II.Y.2.a.i through II.Y.2.a.iv.

II.Y.2.a.i For any past practice unit identified in Appendix C of the HFFACO as a CPP unit, the Permittee must comply with the requirements and schedules related to investigation and cleanup of the CPP unit(s) developed and approved under the HFFACO, as amended. The requirements and schedules related to investigation and cleanup of CPP units currently in place under the HFFACO, as amended, and in the future developed and approved under the HFFACO, as amended, are incorporated into this Permit by this reference and apply under this Permit as if they were fully set forth herein. If the Permittee is not in compliance with requirements of the HFFACO, as amended, that relate to investigation or cleanup of CPP unit(s), Ecology may take action to independently enforce the requirements as corrective action requirements under this Permit.

- 1 **II.Y.2.a.ii** For any past practice unit identified in Appendix C of the HFFACO as a CPP unit, in the
 2 case of an interim Record of Decision (ROD), a final decision about satisfaction of
 3 corrective action requirements will be made in the context of issuance of a final ROD.
- 4 **II.Y.2.a.iii** If EPA and Ecology, after exhausting the dispute resolution process under Section XXVI
 5 of the HFFACO, cannot agree on requirements related to investigation or cleanup of CPP
 6 unit(s), Ecology will notify the Permittees, in writing, of the disagreement and impose, in
 7 accordance with the permit modification procedures of WAC 173-303-830, a requirement
 8 for the Permittees to conduct corrective action for the subject units(s) in accordance with
 9 Permit Condition II.Y.1. The Permittees may challenge Ecology's authority to impose
 10 such corrective action requirements through a timely appeal of such Permit modification,
 11 without argument from Ecology that the Permittee's right to raise such challenge has
 12 been waived by a failure to fully litigate that issue through an appeal taken within thirty
 13 (30) days of the issuance of this Permit, and without argument from the Permittee that
 14 such requirement fails to satisfy a cause for Permit modification under
 15 WAC 173-303-830(3)(a). Within 60 days of receipt of the above Permit modification, or
 16 within some other reasonable period of time agreed to by Ecology and the Permittees, the
 17 Permittees must submit for Ecology review and approval, a plan to conduct corrective
 18 action in accordance with Permit Condition II.Y.1 for the subject unit(s). The Permittee's
 19 plan may include a request that Ecology evaluate work under another authority or
 20 program. Approved corrective action plans under this Permit Condition will be
 21 incorporated into this Permit in accordance with the Permit Modification Procedures of
 22 WAC 173-303-830.
- 23 **II.Y.2.a.iv** The Permittees must maintain information on corrective action for CPP units covered by
 24 the HFFACO in accordance with Sections 9.0 and 10.0 of the HFFACO Action Plan. In
 25 addition, the Permittees must maintain all reports and other information developed in
 26 whole, or in part, to implement the requirements of Permit Condition II.Y.2.a, including
 27 reports of investigations and all raw data, in the Hanford Facility Operating Record in
 28 accordance with Permit Condition II.I. Information that is maintained in the Hanford Site
 29 Administrative Record may be incorporated by reference into the Hanford Facility
 30 Operating Record.
- 31 **II.Y.2.b** For past practice units identified in Appendix C of the HFFACO, as amended, as
 32 RCRA-CERCLA Past Practice (R-CPP) units, Ecology accepts work under the
 33 HFFACO, as amended, as satisfying corrective action requirements to the extent
 34 provided for, and subject to the reservations and requirements of, Permit
 35 Conditions II.Y.2.b.i through II.Y.2.b.ii.
- 36 **II.Y.2.b.i** For any past practice unit identified in Appendix C of the HFFACO, as amended, as an
 37 R-CPP unit, the Permittees must comply with the requirements and schedules related to
 38 investigation and cleanup of R-CPP units developed and approved under the HFFACO,
 39 as amended. The requirements and schedules related to investigation and cleanup of
 40 R-CPP units currently in place under the HFFACO, as amended, and in the future
 41 developed and approved under the HFFACO, as amended, are incorporated into this
 42 Permit by this reference and apply under this Permit as if they were fully set forth herein.
 43 If the Permittee is not in compliance with requirements and schedules related to
 44 investigation and cleanup of R-CPP units developed and approved under the HFFACO,
 45 as amended, Ecology may take action to independently enforce the requirements as
 46 corrective action requirements under this Permit.
- 47 **II.Y.2.b.ii** The Permittees must maintain information on corrective action for R-CPP units covered
 48 by the HFFACO, as amended, in accordance with Sections 9.0 and 10.0 of the HFFACO

1 Action Plan. In addition, the Permittees must maintain all reports and other information
2 developed in whole, or in part, to implement the requirements of Permit Condition
3 II.Y.2.b, including reports of investigations and all raw data, in the Hanford Facility
4 Operating Record in accordance with Permit Condition II.1. Information that is
5 maintained in the Hanford Site Administrative Record may be incorporated into the
6 Hanford Facility Operating Record by reference.

7 **II.Y.2.c** For each TSD unit, when the Permittees submit a certification of closure or a certification
8 of completion of post-closure care, or at an earlier time agreed to by Ecology and the
9 Permittees, the Permittees must, at the same time, either:

10 **II.Y.2.c.i** Document that the activities completed under closure and/or post-closure satisfy the
11 requirements for corrective action; or

12 **II.Y.2.c.ii** If the activities completed under closure and/or post-closure care do not satisfy corrective
13 action requirements, identify the remaining corrective action requirements and the
14 schedule under which they will be satisfied, if remaining corrective action requirements
15 will be satisfied by work developed and carried out under the HFFACO provisions for
16 R-CPP units or CPP units, a reference to the appropriate R-CPP or CPP process and
17 schedule will suffice.

18 **II.Y.2.c.iii** Ecology will make final decisions as to whether the work completed under closure or
19 post-closure care satisfies corrective action, specify any unit-specific corrective action
20 requirements, and incorporate the decision into this Permit in accordance with the permit
21 modification procedures of WAC 173-303-830.

22 **II.Y.2.d** Notwithstanding any other condition in this Permit, Ecology may directly exercise any
23 administrative or judicial remedy under the following circumstances:

24 **II.Y.2.d.i** Any discharge or release of dangerous waste, or dangerous constituents, which are not
25 addressed by the HFFACO, as amended.

26 **II.Y.2.d.ii** Discovery of new information regarding dangerous constituents or dangerous waste
27 management, including but not limited to, information about releases of dangerous waste
28 or dangerous constituents which are not addressed under the HFFACO, as amended.

29 **II.Y.2.d.iii** A determination that action beyond the terms of the HFFACO, as amended, is necessary
30 to abate an imminent and substantial endangerment to the public health, or welfare, or to
31 the environment.

32 **II.Y.3** Releases of Dangerous Waste or Dangerous Constituents Not Covered By the HFFACO:

33 **II.Y.3.a** US Ecology

34 **II.Y.3.a.i** The following solid waste management units are not covered by the HFFACO:

35 **II.Y.3.a.i.a** US Ecology, Inc., SWMU 1: Chemical Trench.

36 **II.Y.3.a.i.b** US Ecology, Inc., SWMU 2-13: Low-Level Radioactive Waste Trenches 1 through 11A.

37 **II.Y.3.a.i.c** US Ecology, Inc., SWMU 17: Underground Resin Tank.

38 **II.Y.3.a.ii** Selected solid waste management units identified in Permit Condition II.Y.3.a.i are
39 currently being investigated by US Ecology in accordance with the Comprehensive
40 Investigation US Ecology – Hanford Operations Workplan. Following completion of this
41 investigation and any closure required of such solid waste management unit under the
42 authority of the Washington State Department of Health, or within one year of the
43 effective date of this Permit Condition, whichever is earlier, Ecology will make a
44 tentative decision as to whether additional investigation or cleanup is necessary to protect

Part I Standard and Part II General Facility Conditions

human health or the environment for the solid waste management units identified in Permit Condition II.Y.3.a.i, and publish that decision as a draft permit in accordance with WAC 173-303-840(10). Following the associated public comment period, and consideration of any public comments received during the public comment period, Ecology will publish as final Permit conditions under WAC 173-303-840(8) either:

II.Y.3.a.ii.a A decision that corrective action is not necessary to protect human health or the environment;

II.Y.3.a.ii.b An extension to the schedule established under Permit Condition II.Y.3.a.ii, or

II.Y.3.a.ii.c A decision, that corrective action, in accordance with Permit Condition II.Y.1, is necessary to protect human health or the environment.

II.Y.3.a.iii If Ecology decides under Permit Condition II.Y.3.a.ii that corrective action is necessary to protect human health or the environment, the Permittees may challenge Ecology's authority to impose such corrective action requirements through a timely appeal of such permit modification, without argument from Ecology that the right to raise such challenge has been waived by a failure to fully litigate that issue through an appeal taken within 30 days of the issuance of this Permit, and with argument from the Permittees that such requirement fails to satisfy a cause for permit modification under WAC 173-303-830(3)(a). Within 180 days of receipt of the above Permit modification, the Permittees must submit, for Ecology review and approval, a plan to conduct corrective action in accordance with Permit Condition II.Y.1. Approved corrective action plans under this condition will be incorporated into this Permit in accordance with the Permit Modification Procedures of WAC 173-303-830.

II.Y.3.b Newly Identified Solid Waste Management Units and Newly Identified Releases of Dangerous Waste or Dangerous Constituents.

The Permittees must notify Ecology of all newly-identified solid waste management units and all newly-identified areas of concern at the Facility. For purposes of this condition, a 'newly-identified' solid waste management unit or a 'newly-identified' area of concern is a unit or area not identified in the HFFACO, as amended, on the effective date of this condition and not identified by Permit Condition II.Y.3.a.

Notification to Ecology must be in writing and must include, for each newly-identified unit or area, the information required by WAC 173-303-806(4)(a)(xxiii) and WAC 173-303-806(4)(a)(xxiv). Notification to Ecology must occur at least once every calendar year, in January, and must include all units and areas newly identified since the last notification, except that if a newly identified unit or area may present an imminent and substantial endangerment to human health or the environment, notification must occur within five days of identification of the unit or area. If information required by WAC 173-303-806(4)(a)(xxiii) or WAC 173-303-806(4)(a)(xxiv) is already included in the Waste Information Data System, it may be incorporated by reference into the required notification.

II.Z Waste Minimization

In accordance with WAC 173-303-380(1)(q), and Section 3005(h) of RCRA, 42 U.S.C. 6925(h), the Permittee must place a certification in the Hanford Facility Operating Record, Unit-Specific Files on an annual basis that:

II.Z.1.a A program is in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the Permittee to be economically practicable; and,

II.Z.1.b The proposed method of treatment, storage or disposal is that practicable method currently available to the Permittee, which minimizes the present and future threat to human health and the environment.

II.Z.2 The Permittee will maintain each such certification of waste minimization in the operating record as required by Permit Condition II.I.1.

II.AA Air Emission Standards for Process Vents

The Permittees will comply with applicable requirements of WAC 173-303-690 for process vents associated with Part III units performing specific separations processes unless exempted by WAC 173-303-690(1)(d). Threshold limits applied to process vents potentially requiring emission controls subject to WAC 173-303-690 are evaluated based on the summation of applicable emission sources for the entire Hanford Facility. When the summed emissions fall below threshold limits in 40 CFR 264.1032(a)(1), no emission control devices are required. If threshold limits in 40 CFR 264.1032(a)(1) are predicted to be exceeded, the Permittees will notify Ecology to determine the appropriate course of action. Unit-specific information is contained in Part III of the Permit for applicable units.

II.BB Air Emission Standards for Equipment Leaks

The Permittees will comply with applicable requirements of WAC 173-303-691 for certain equipment leaks associated with Part III units unless exempted by WAC 173-303-691(1)(e) or (f). Air emission standards apply to equipment that contacts or contains hazardous wastes with organic concentrations of at least 10 percent by weight. Unit-specific information is contained in Part III of the Permit for applicable units.

II.CC Air Emission Standards for Tanks, Surface Impoundments, and Containers

The Permittees shall comply with applicable requirements of WAC 173-303-692 for containers, tanks, and surface impoundment areas associated with Part III units unless exempted by WAC 173-303-692(1)(b). Unit-specific information is contained in Part III of the Permit for applicable units.

PART III UNIT-SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS

Operating Unit 2, PUREX Storage Tunnels

Operating Unit 3, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Operating Unit 4, 242-A Evaporator

Operating Unit 5, 325 Hazardous Waste Treatment Units

Operating Unit 10, Waste Treatment and Immobilization Plant

Operating Unit 11, Integrated Disposal Facility

Operating Unit 15, 331-C Storage Unit

Operating Unit 16, 400 Area Waste Management Unit

PART IV UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION

Corrective Action Unit 1, 100-NR-1

PART V UNIT-SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE

Closure Unit 1, 1325-N Liquid Waste Disposal Facility

1 Closure Unit 2, 1301-N Liquid Waste Disposal Facility

2 Closure Unit 3, 1324-N Surface Impoundment and 1324-NA Percolation Pond

3 **PART VI UNIT-SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE**

4 Post Closure Unit 1, 300 Area Process Trenches

5 Post Closure Unit 2, 183-H Solar Evaporation Basins

6 **UNITS RETIRED FROM THE PERMIT**

7 100 D Ponds (Closed 8/9/99)

8 105-DR Large Sodium Fire Facility (Closed 7/1/04)

9 100-NR-2 Operable Unit (9/30/09)

10 200 West Area Ash Pit Demolition Site (Closed 11/28/95)

11 2101-M Pond (Closed 11/28/95)

12 216-B-3 Expansion Ponds (Closed 7/31/95)

13 218-E-8 Borrow Pit Demolition Site (Closed 11/28/95)

14 224-T Transuranic Waste Storage and Assay Facility (Closed 11/12/08)

15 241-Z Treatment and Storage Tanks (Closed 2/22/07)

16 2727-S Nonradioactive Dangerous Waste Storage Facility (Closed 7/31/95)

17 300 Area Solvent Evaporator (Closed 7/31/95)

18 300 Area Waste Acid Treatment System (Closed 10/30/2005)

19 303-K Storage Facility (Closed 7/22/02)

20 303-M Oxide Facility (Closed 6/15/06)

21 304 Concretion Facility (Closed 1/21/96)

22 305-B Storage Facility (Closed 7/2/07)

23 3718-F Alkali Metal Treatment and Storage Facility Closure Plan (Closed 8/4/98)

24 4843 Alkali Metal Storage Facility Closure Plan (Closed 4/14/97)

25 Hanford Patrol Academy Demolition Site (Closed 11/28/95)

26 Plutonium Finishing Plant Treatment Unit (Closed 2/8/05)

27 Simulated High Level Waste Slurry Treatment and Storage Unit (Closed 10/23/95)

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PART V, CLOSURE UNIT GROUP 6 CONDITIONS
WASTE ENCAPSULATION AND STORAGE FACILITY HOT CELLS A THROUGH F

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PART V, CLOSURE UNIT GROUP 6 CONDITIONS
WASTE ENCAPSULATION AND STORAGE FACILITY HOT CELLS A THROUGH F

UNIT DESCRIPTION

The Waste Encapsulation and Storage Facility (WESF) Hot Cell A through F is an inactive Dangerous Waste Management Unit. During operations, these hot cells protected workers and allowed them to safely handle radioactive materials. Large amounts of legacy contamination throughout Hot Cells A through F and the ventilation system require stabilization of the contamination, as well as upgrades to the ventilation system.

Hot Cells A through F Dangerous Waste Management Unit is proposed to be clean closed by removal. Once the stabilized hot cells have been removed, the remaining underlying soil will be sampled and must meet clean closure levels, as detailed in Addenda H, Closure Plan.

LIST OF ADDENDA SPECIFIC TO CLOSURE UNIT GROUP 6

Addenda A Part A
Addenda H Closure Plan

DEFINITIONS

Reserved

ACRONYMS

WESF Waste Encapsulation and Storage Facility

V.6.A COMPLIANCE WITH PERMIT CONDITIONS

The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following unit-group Permit Conditions are enforceable in their entirety.

In the event that the Part V, Unit-Group Conditions for Closure Unit 6, WESF Hot Cells A through F conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit-group conditions will prevail for Closure Unit 6, WESF Hot Cell A through F.

V.6.B CLOSURE

V.6.B.1 The Permittees will comply with all requirements set forth in the Addendum H, Closure Plan for the WESF Hot Cells A through F, and close the WESF Hot Cells A through F in accordance with the Addendum H, Closure Plan. [WAC 173-303-610(3)(a)]

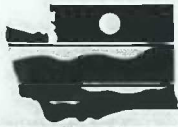
V.6.B.2 Upon receipt of the final laboratory analytical report, the Permittees will use the data analysis function to generate the Data Analysis Report from Visual Sample Plan, in order to demonstrate whether sampling assumptions in the Addendum H, Closure Plan, *Section H-A5.13, Sampling and Analysis Plan and Constituents to be Analyzed*, were met. The Permittees will provide the Data Analysis Report to Ecology within 30 days from receipt of the final laboratory analytical report. If sampling assumptions were not met, the Permittees must submit a permit modification request, in accordance with Permit Condition I.C.3, to amend the Closure Plan to include a revised sampling design. The permit modification request must be submitted within 60 days of submittal of the Visual Sample Plan Data Analysis Report to Ecology.

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ADDENDUM A
WASTE ENCAPSULATION AND STORAGE FACILITY PART A FORM



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by: <i>Stephen Aehlif</i>	Date: 06/20/2016
Month Day Year	Approved by: <i>[Signature]</i>	Date: 06/20/2016
06/20/2016		

I. This form is submitted to: (place an "X" in the appropriate box)

<input checked="" type="checkbox"/>	Request modification to a final status permit (commonly called a "Part B" permit)
<input type="checkbox"/>	Request a change under interim status
<input type="checkbox"/>	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
<input type="checkbox"/>	Establish interim status because of the wastes newly regulated on: _____ (Date) _____
List waste codes: _____	

II. EPA/State ID Number

W A 7 8 9 0 0 0 8 9 6 7

III. Name of Facility

U.S. Department of Energy – Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

Refer to Permit Attachment 2 – Hanford Facility Permit Legal Description

City or Town	State	ZIP Code
Near Richland	WA	
County Code (if known)	County Name	
0 0 5	Benton	

B. Land Type	C. Geographic Location	D. Facility Existence Date
	Latitude (degrees, mins, secs) Longitude (degrees, mins, secs)	Month Day Year
F	Refer to TOPO Map (Section XV.)	1 1 1 9 1 9 8 0

V. Facility Mailing Address

Street or P.O. Box	City or Town	State	ZIP Code
P.O. Box 550	Richland	WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)				
Name (last)		(first)		
Charboneau		Stacy L.		
Job Title		Phone Number (area code and		
Manager		(509) 376-7395		
Contact Address				
Street or P.O. Box				
P.O. Box 550				
City or Town		State	ZIP Code	
Richland		WA	99352	
VII. Facility Operator Information				
A. Name		Phone Number		
U.S. Department of Energy Owner/Operator		(509) 376-7395		
CH2M HILL Plateau Remediation Company Co-Operator for dangerous waste management units in the Waste Encapsulation and Storage Facility Unit Group*		(509) 376-0556*		
Street or P.O. Box				
P.O. Box 550				
P.O. Box 1600*				
City or Town		State	ZIP Code	
Richland		WA	99352	
B. Operator Type	F			
C. Does the name in VII.A reflect a proposed change in operator?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If yes, provide the scheduled date for the change:		Month	Day	Year
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
VIII. Facility Owner Information				
A. Name		Phone Number (area code and number)		
U.S. Department of Energy Owner/Operator		(509) 376-7395		
Street or P.O. Box				
P.O. Box 550				
City or Town		State	ZIP Code	
Richland		WA	99352	
B. Owner Type	F			

C. Does the name in VIII.A reflect a proposed change in owner?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	If yes, provide the scheduled date for the change:	
	Month	Day Year

IX. NAICS Codes (5/6 digit codes)

A. First						B. Second							
5	6	2	2	1	1	Waste Treatment & Disposal	9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs
C. Third						D. Fourth							
5	4	1	7	1	2	Research & Development in the Physical, Engineering, & Life Sciences							

X. Other Environmental Permits (see instructions)

A. Permit Type	B. Permit Number												C. Description
E	A	I	R	-	0	6	-	1	0	1	4		WAC 246-247, "Radiation Protection—Air Emissions"
E	A	O	P	0	0	-	0	5	-	0	0	6	Title V Air Operating Permit
E	S	T	0	0	0	4	5	1	1				State Waste Discharge Permit: Miscellaneous Stream Permit

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

The Waste Encapsulation and Storage Facility (WESF) was constructed on the west end of B Plant between 1971 and 1973 to encapsulate and store radioactive cesium and strontium that had been separated from Hanford Facility radioactive tank waste. The radioactive cesium is stored as cesium chloride, and the strontium is stored as strontium fluoride. WESF has stored the encapsulated salts since operations began in 1974, and mixed waste management activities were initiated on July 14, 1997.

WESF is a two-story, 1,858 m² (20,000 ft²) building that is approximately 48 m (157 ft) long, 30 m (97 ft) wide, and 12 m (40 ft) high. It is constructed of steel reinforced concrete. WESF is partitioned into seven hot cells, the hot cell service area, operating areas, building service areas, and the pool cell area. There are three dangerous waste management units (DWMUs) at WESF: two are operating and one is closing. The two operating DWMUs consist of the Hot Cell G DWMU and the Pool Cells DWMU.

The closing DWMU consists of Hot Cell A through Hot Cell F, which are being filled with grout as part of a legacy contamination stabilization project and ventilation replacement in 2016. The hot cell service area is located on the south side of the hot cells and is used for access into Hot Cells A and G. The operating areas and other building service areas associated with the hot cells provide areas for instrumentation monitoring, utility support, or manipulator repair, as required.

The two operating WESF DWMUs have been classified as X99 storage units due to their unique nature and high radiation content. Classification of the Pool Cells and Hot Cell G DWMUs as miscellaneous units is necessary because the unique radiological characteristics of the cesium/strontium capsules require specialized management systems and requirements other than those applicable to container storage units.

Pool Cells

The WESF pool cell area consists of 12 pools lined with stainless steel. The Pool Cell DWMU consists of Pool Cells 1 through 8 and 12 which can be used for capsule storage and are filled with water to a depth of approximately 4 m (13 ft). Each pool cell is equipped with a monitoring system to detect any leakage from capsules. The water cools the cesium/strontium capsules and provides radiation shielding. Pool Cell 12 is used to move capsules from Hot Cell G and from pool cell to pool cell.

The dangerous waste being managed at WESF is the cesium and strontium capsules stored in the Pool Cells. The waste is stored in stainless steel capsules with a maximum outer height of approximately 53 cm (~21 in.) and maximum diameter of approximately 8 cm (~3 in.).

Pool Cells 9, 10, and 11 are not configured to store capsules; therefore, they are not DWMUs or subject to treatment, storage, and disposal (TSD) requirements under the permit. Pool Cells 9 and 10 were designed to be used for waste water collection (e.g., steam condensate). The waste water was collected in one of these pool cells. When it was full, the water was sampled and then disposed of, typically to the Treated Effluent Disposal Facility. Following deactivation of the steam system, there was very little waste water generated anymore. Pool Cell 11 is dry and contains the resin column for the pool cell ion exchange system.

Hot Cell G

Hot Cell G was used to perform inspections of capsules. Historically, both Hot Cell F and Hot Cell G have been available to support contingency operations in the event of a capsule failure. After closure of Hot Cell F, upon discovery of a suspected failed capsule, the capsule would be brought into Hot Cell G for inspection and testing; it would then be placed into shielded storage pending development of a full recovery plan. Hot Cell G will continue to provide a location for welding and testing should installation of overpacks onto capsules be required. The intended use for Hot Cell G is unchanged; it provides support for the pool cells by storing capsules suspected of leaking and supports loading of capsules into canisters/casks to allow removal of the capsules from WESF. With the addition of shielded storage to Hot Cell G, personnel will have continued access to Hot Cell G while capsules are being stored, thereby eliminating the need for Hot Cell F to remain operational.

Hot Cell A through Hot Cell F

Waste and drum loadout was performed in Hot Cell A during production operations. Hot Cells B through E were used to convert strontium nitrate and cesium carbonate into strontium fluoride and cesium chloride salts. The hot cells were also used to place the salt into capsules along with welding and leak testing of the capsules. Hot Cell F remained operational to support contingency operations in the event of a capsule leak by providing storage of capsules to allow continued personnel access to Hot Cell G but was not used for that purpose. With the addition of shielded storage to Hot Cell G, Hot Cell F has been determined unnecessary for contingency operations and, along with Hot Cell A through Hot Cell E, is proposed for closure.

Storage Capacity Pool Cells

Capsules can be stored in Pool Cells 1, 3, 4, 5, 6, 7, and 12. Pool Cells 2 and 8 are part of the TSD boundary, but there is no capability to store capsules there. Pool Cells 1, 3, 4, 5, 6, and 7 contain engineered devices (capsule storage racks) to store the capsules.

Each pool cell contains three racks, with a total storage capacity of 715 capsules per pool cell. These 6 pool cells can hold 4,290 capsules. Capsules in Pool Cell 12 are not stored in racks (Pool Cell 12 is used for temporary storage only). Therefore, the storage capacity of Pool Cell 12 will be calculated by dividing the area of the Pool Cell 12 floor by the area needed to store each capsule. Without a rack, the capsule will not remain vertical and will be stored lying horizontally on the floor. The following assumptions are made: capsules are stored in a single layer (they are not stacked); each capsule needs a space 10 cm (4 in.) by 61 cm (24 in.) = 610 cm² (96 in.²). Existing operational and safety basis limits are not considered as constraints on how many capsules may be stored in Pool Cell 12; Pool Cell 12 is approximately 91 cm (36 in.) wide by 1,950 cm (768 in.) long which equals approximately 177,450 cm² (27,650 in.²); 27,650 in.²/96 in.² = 288 capsules. Therefore, the total storage capacity of Pool Cells 1, 3, 4, 5, 6, 7, and 12 is 4,578 capsules. Assuming 1 L (0.264 gal)/capsule, this equates to 4,578 L (1,209 gal).

Storage Capacity G Cell

Shielded storage will be provided in Hot Cell G to allow storage for leaking capsules but maintain the ability for personnel entry into the hot cell. Shielded storage will hold up to nine capsules. Therefore, the total storage capacity of Hot Cell G is nine capsules. Assuming 1 L (0.264 gal)/capsule, this equates to 9 L (2.38 gal). The total combined storage for the DWMUs is 4,587 L (1,212 gal) (Pool Cells and Hot Cell G combined).

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below):

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes								
Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	D. Process Description
					1. Amount	2. Unit of Measure (enter code)							1. Amount	2. Unit of Measure (enter code)		
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ Vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1	X	9	9	4,587	L	003		1	X	9	9	4,578	L	001	Pool Cells Storage
	2								2	X	9	9	9	L	001	Hot Cell G Storage
	3								3	X	9	9	0	L	001	Hot Cell A through Hot Cell F
	4								4							
	5								5							
	6								6							
	7								7							
	8								8							
	9								9							
1	0							1	0							
1	1							1	1							
1	2							1	2							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
1	9							1	9							
2	0							2	0							
2	1							2	1							
2	2							2	2							
2	3							2	3							
2	4							2	4							
2	5							2	5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Processes											
				(1) Process Codes										(2) Process Description [If a code is not entered in D (1)]	
X 1	D 0 0 2	400	P	S	0	1	T	0	1						
X 2	D 0 0 1	100	P	S	0	2	T	0	1						
X 3	D 0 0 2														Included with above
1	D 0 0 5	4,587	L	X	9	9									Storage
2	D 0 0 6	Included Above	Included Above	X	9	9									Included Above
3	D 0 0 7	Included Above	Included Above	X	9	9									Included Above
4	D 0 0 8	Included Above	Included Above	X	9	9									Included Above
5	D 0 1 1	Included Above	Included Above	X	9	9									Included Above
6															
7															
8															
9															
10															
11															
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23															
24															
25															

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

A topographic map of the Hanford Facility is located in the Ecology Library. A topographic map of WESF is included in Attachment A, "Section XVII – Photographs", which contains photographs and figures.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

Photographs are included in Attachment A.

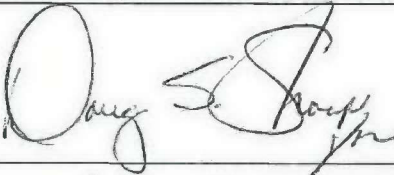
XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator

Name and Official Title (type or print)

Stacy L. Charboneau, Manager
U.S. Department of Energy
Richland Operations Office



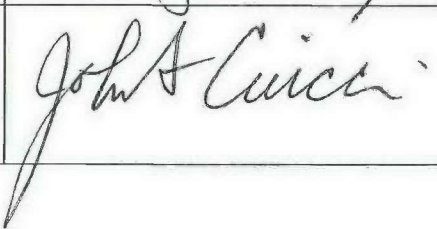
Date Signed

6/16/16

Co-Operator*

Name and Official Title (type or print)

John Ciucci
President and Chief Executive Officer
CH2M HILL Plateau Remediation Company



Date Signed

6/15/16

Co-Operator — Address and Telephone Number*

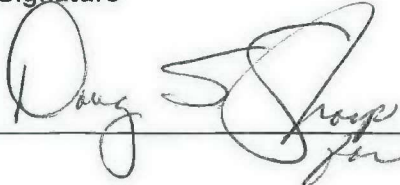
P.O. Box 1600
Richland, WA 99352
(509) 376-0556

Facility-Property Owner

Name and Official Title (type or print)

Stacy L. Charboneau, Manager
U.S. Department of Energy
Richland Operations Office

Signature



Date Signed

6/16/16

XIX. Comments

Revision 5 update documents changes to the facility that are necessary to replace the existing ventilation system and stabilize the legacy radioactive contamination in WESF. This revision identifies 3 DWMUs. Two DWMUs will continue to operate, store, and process (Pool Cells 1 through 8 and 12 and Hot Cell G) cesium and strontium capsules. The other DWMU, consisting of Hot Cell A through Hot Cell F, is no longer needed and will undergo extended closure in order to coordinate closure with the remaining DWMUs at WESF. Building diagrams and maps were updated to reflect changes in the DWMUs.

Attachment A contains pictures and topographic maps of WESF.

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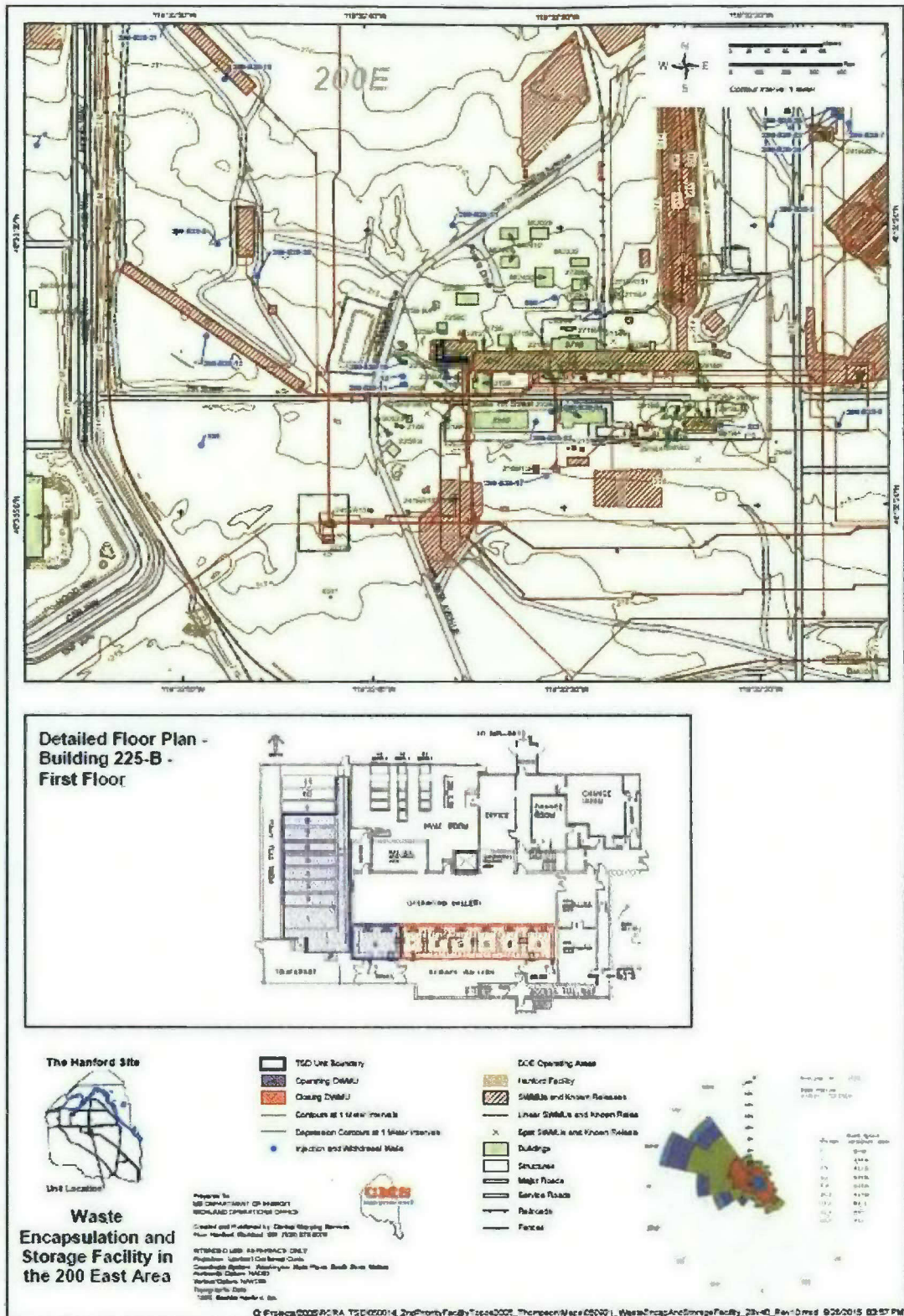
**WASTE ENCAPSULATION AND STORAGE FACILITY PART A ATTACHMENT A
SECTION XVII – PHOTOGRAPHS**

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Note: Figure date is October 2015.



Note: Figure date is October 2015.

Figure A-2. WESF Topographic Map Operating and Closing Units

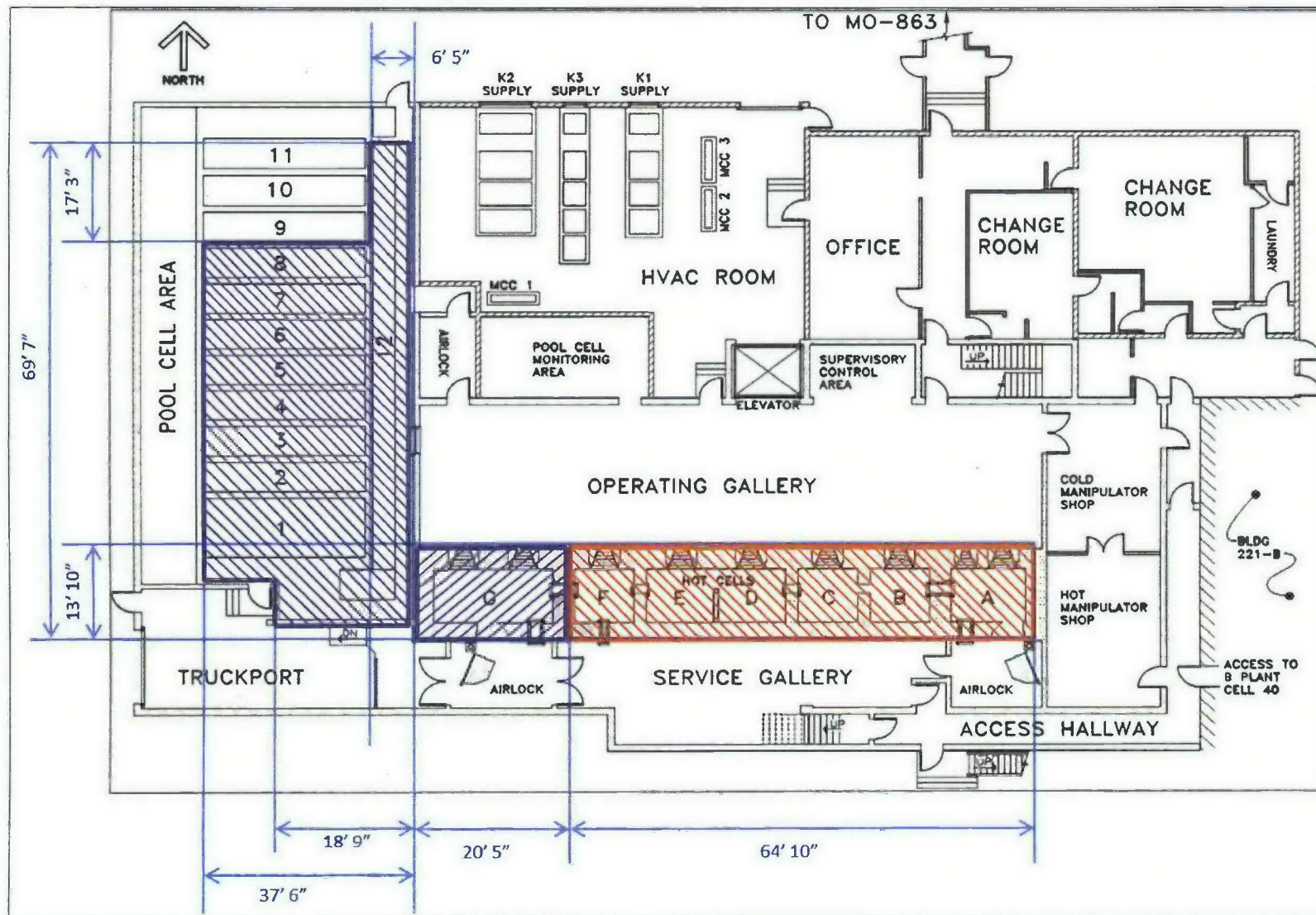


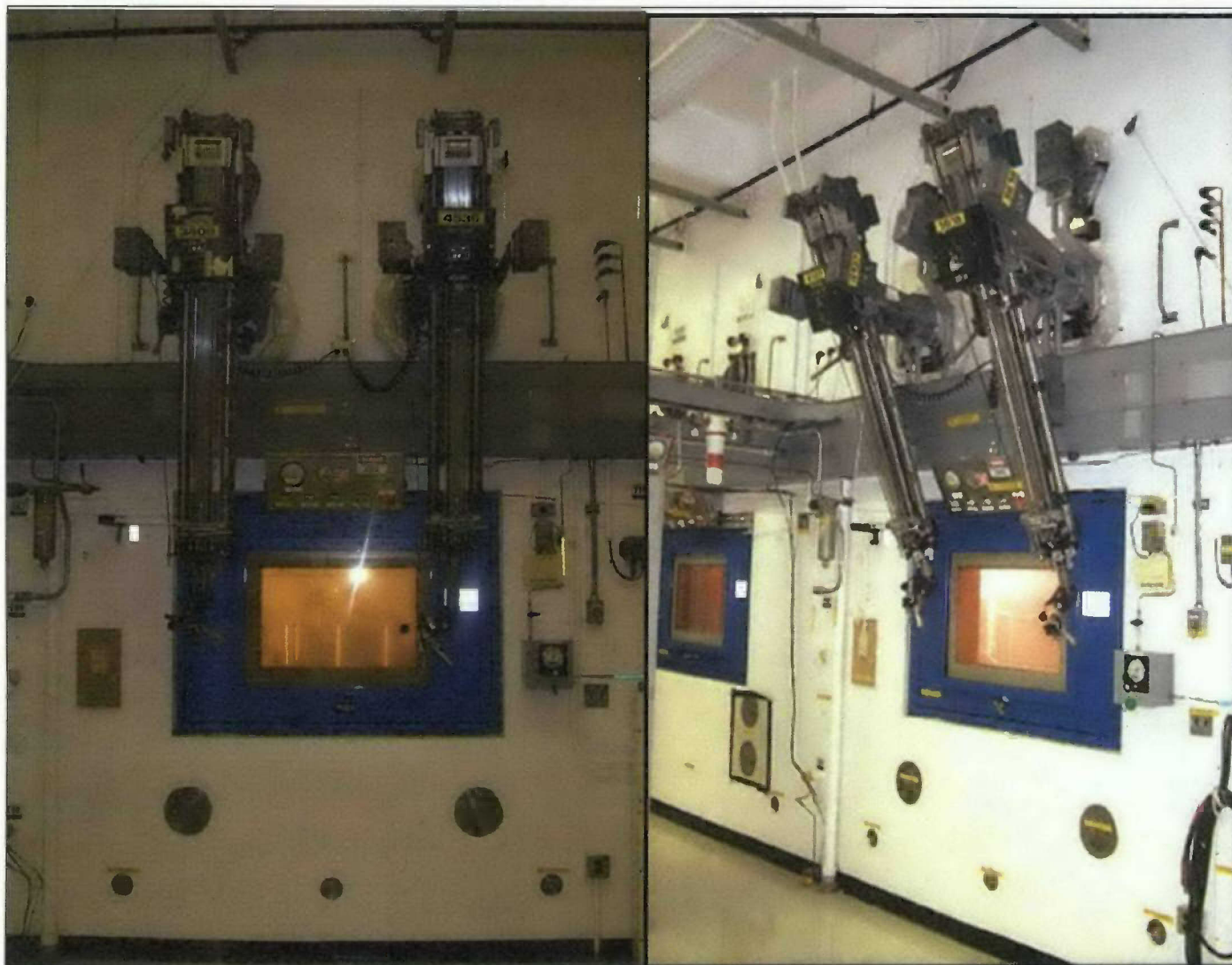
Figure A-3. Map of WESF Pool and Process Cells



2 Note: Photo was taken in 1997.

3

Figure A-4. 225-B Building



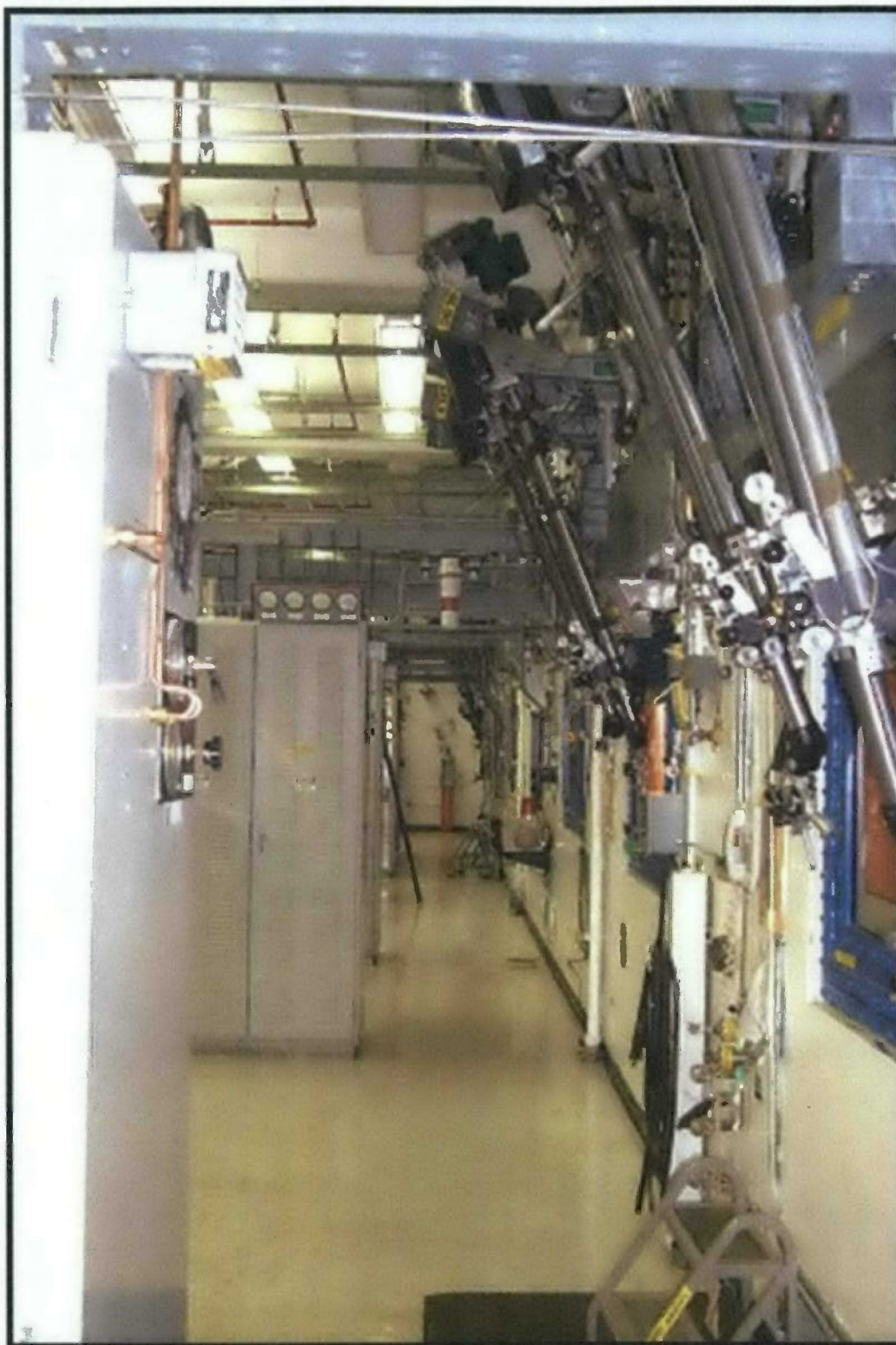
Note: These photos are undated and reflect the current appearance.

Figure A-5. F Cell



Note: Typical, undated photograph reflects the current appearance.

Figure A-6. C Cell and D Cell



Note: Length example; undated photo reflects the current appearance.

Figure A-7. 221 Hot Cells

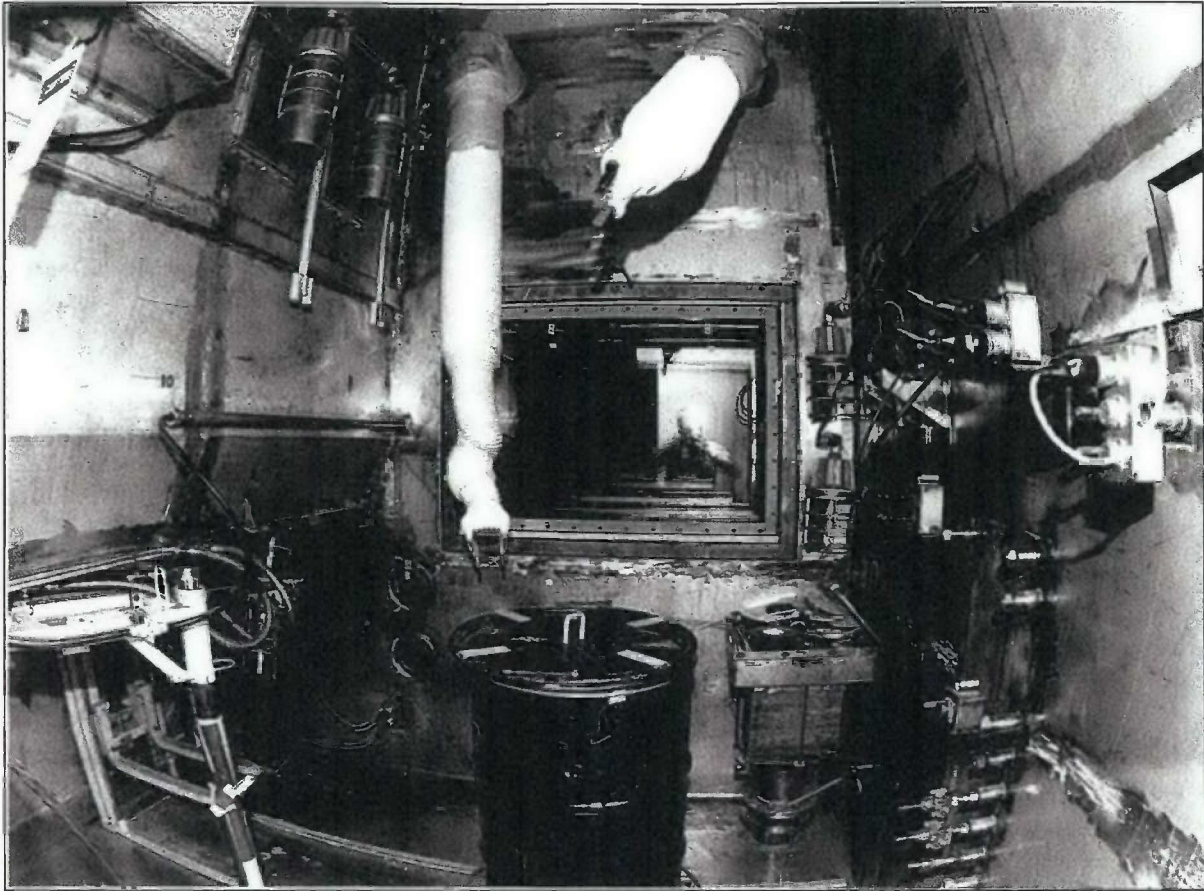
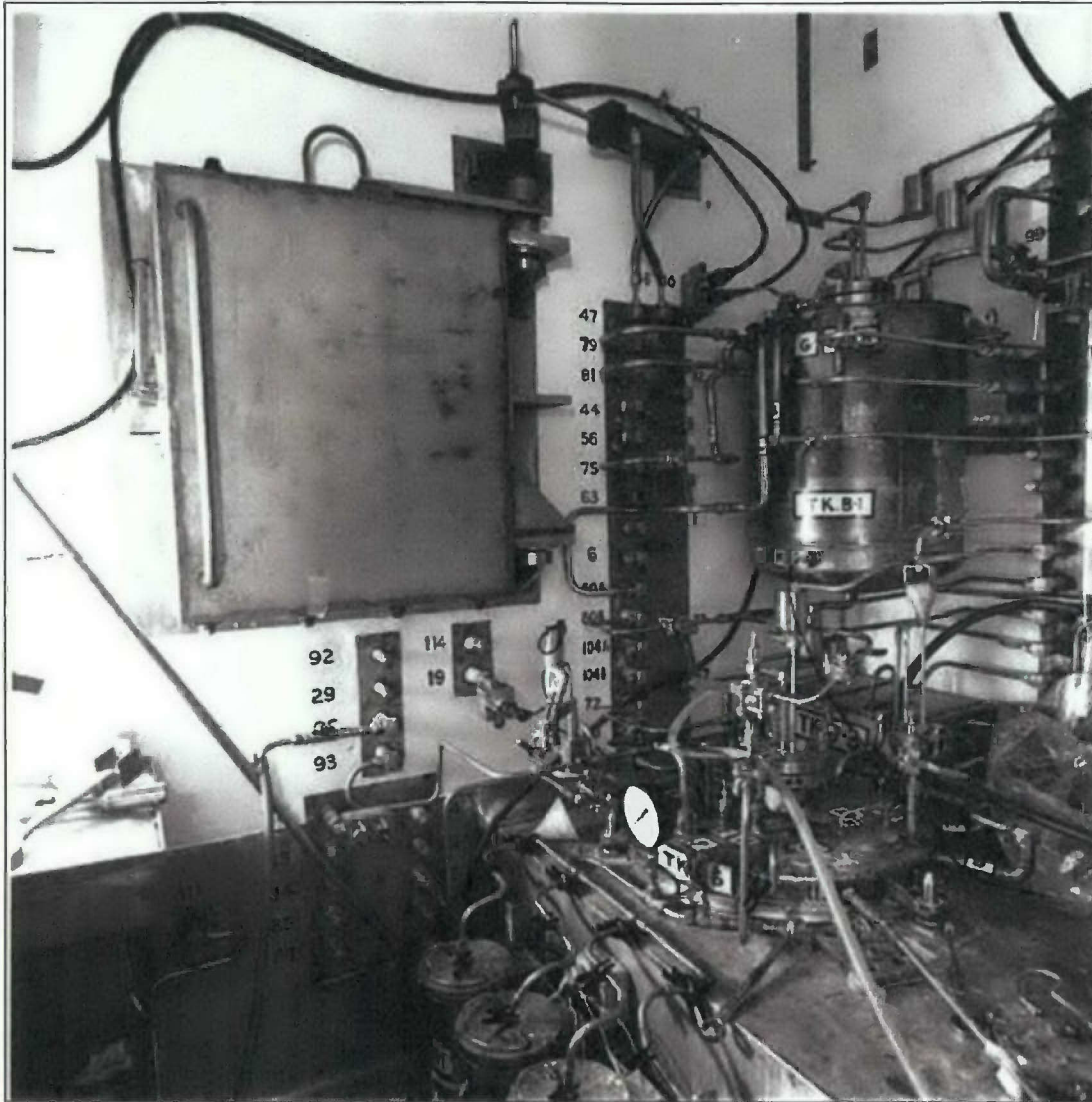
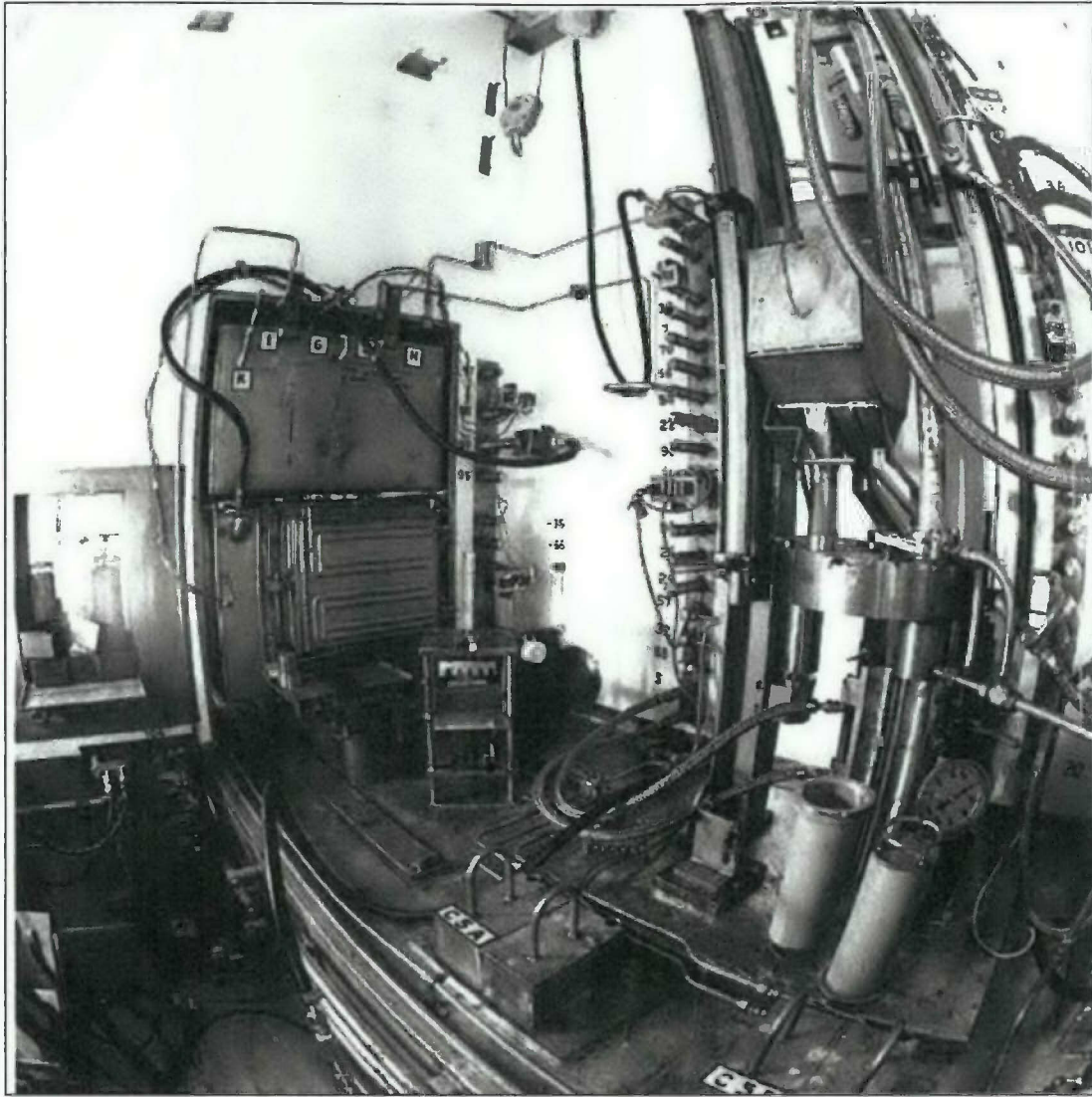


Figure A-8. Hot Cell A Looking North (2006)



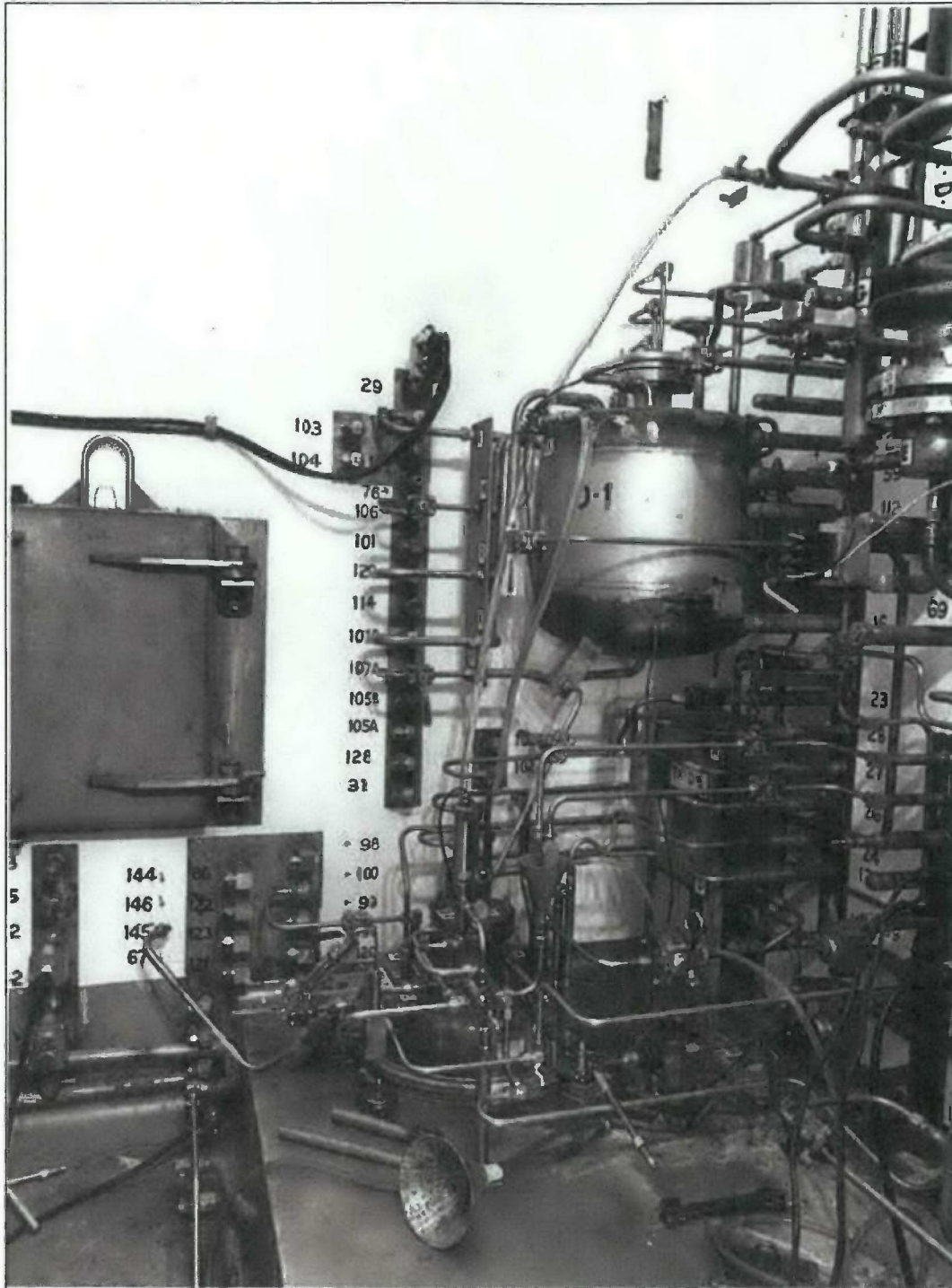
Note: Estimated date of photo is 1973 or 1974.

Figure A-9. Hot Cell B Looking Southeast



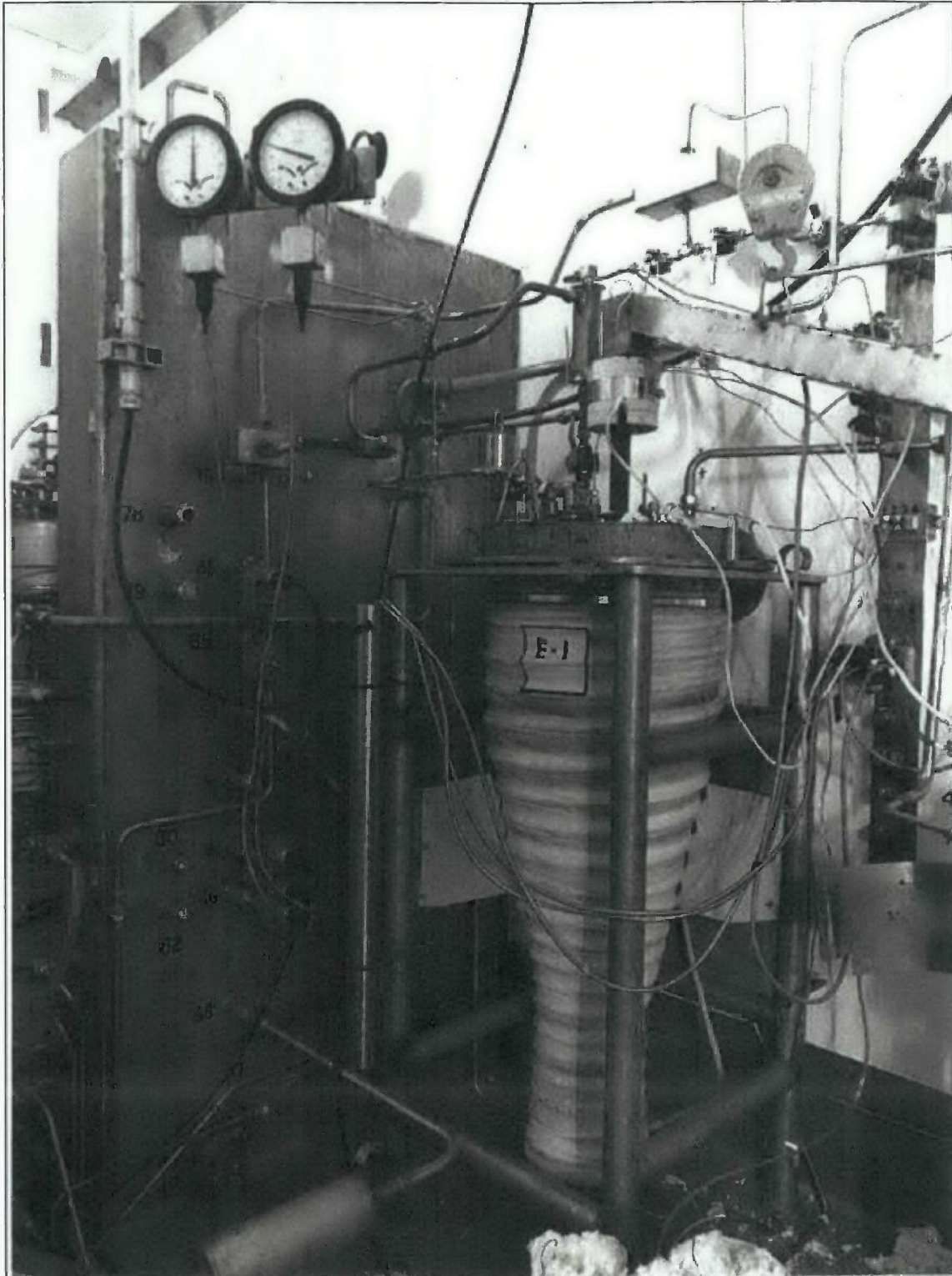
Note: Estimated date of photo is 1973 or 1974.

Figure A-10. Hot Cell C Facing East



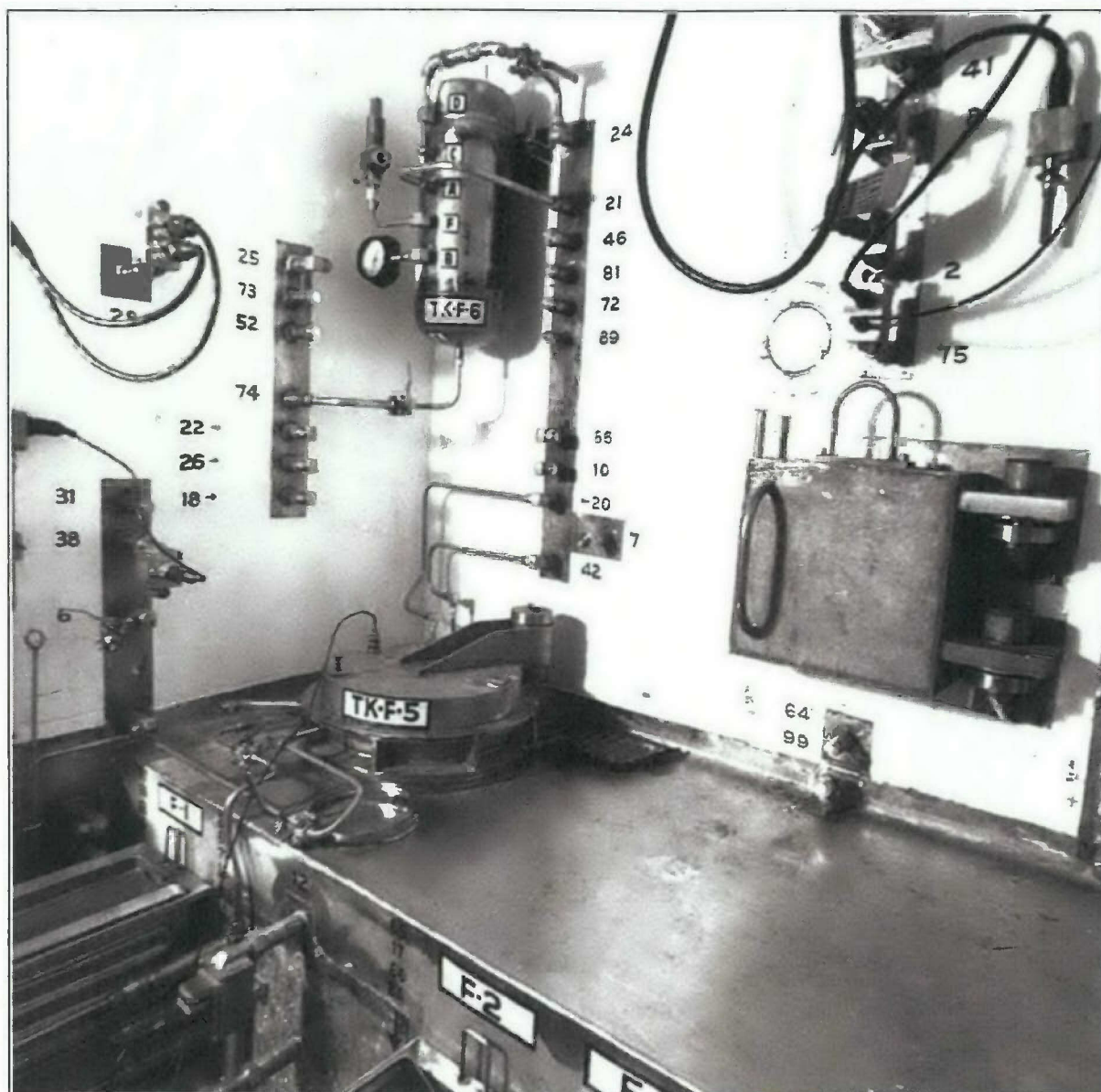
Note: Estimated date of photo is 1973 or 1974.

Figure A-11. Hot Cell D Looking Southeast



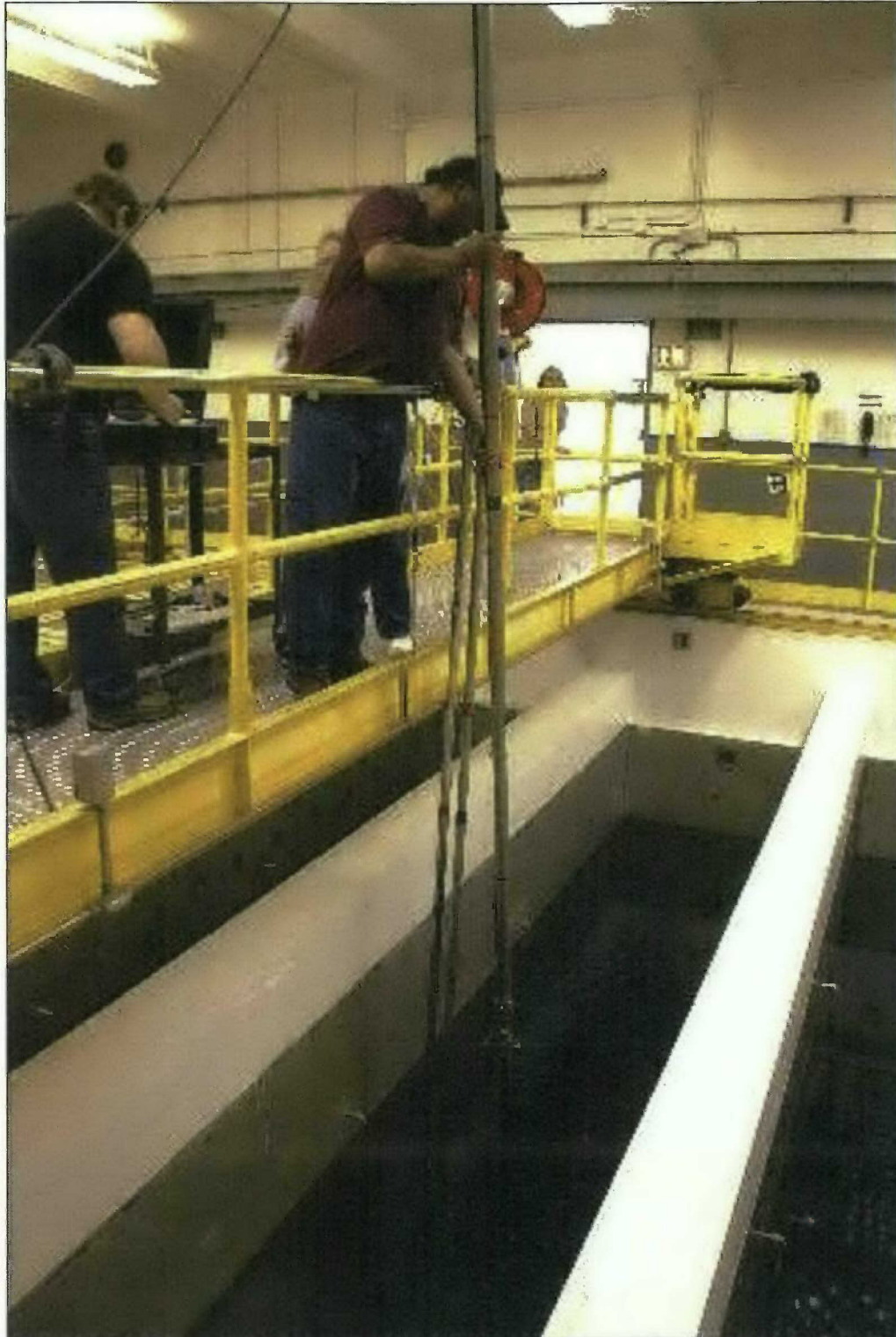
Note: Estimated date of photo is 1973 or 1974.

Figure A-12. Hot Cell E Looking Southeast into Hot Cell D



Note: Estimated date of photo is 1973 or 1974.

Figure A-13. Hot Cell F Facing Southeast



Note: Moving capsules in June 2012.

Figure A-14. Pool Cells



Note: Top view is from June 2012.

Figure A-15. Pool Cells



Note: Top view is from June 2012.

Figure A-16. Pool Cells

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ADDENDUM H

**WASTE ENCAPSULATION AND STORAGE FACILITY HOT CELL A THROUGH F
DANGEROUS WASTE MANAGEMENT UNIT CLOSURE PLAN**

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ADDENDUM H**WASTE ENCAPSULATION AND STORAGE FACILITY HOT CELL A THROUGH F
DANGEROUS WASTE MANAGEMENT UNIT CLOSURE PLAN****TABLE OF CONTENTS**

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1 **TERMS**

AMU	aqueous makeup
Cs-137	cesium-137
DOE	U.S. Department of Energy
DOE-RL	DOE Richland Operation Office
DQA	data quality assessment
DWMU	dangerous waste management unit
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
FWS	Field Work Supervisor
HEIS	Hanford Environmental Information System
HEPA	high-efficiency particulate air
HHE	human health and the environment
IQRPE	Independent Qualified Registered Professional Engineer
LDR	land disposal restriction
LLW	low-level waste
MTCA	"Model Toxics Control Act—Cleanup" (<u>WAC 173-340</u>)
N/A	not applicable
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
SAP	sampling and analysis plan
Sr-90	strontium-90
TSD	treatment, storage, and/or disposal
VSP	Visual Sample Plan
WESF	Waste Encapsulation and Storage Facility

H1 INTRODUCTION

This addendum details closure activities for the Waste Encapsulation and Storage Facility (WESF) Closure Unit Group 6 Hot Cell A through Hot Cell F dangerous waste management unit (DWMU).

H2 FACILITY CONTACT INFORMATION

WESF Operator and Property Owner:

Stacy L. Charboneau, Manager
U.S. Department of Energy, Richland Operations Office
P.O. Box 550
Richland, WA 99352
(509) 376-7395

WESF Co-Operator:

John Ciucci, President and Chief Executive Officer
CH2M HILL Plateau Remediation Company
P.O. Box 1600
Richland, WA 99352
(509) 376-0556

H3 FACILITY DESCRIPTION

WESF was constructed on the west end of B Plant between 1971 and 1973 to encapsulate and store radioactive cesium-137 (Cs-137) and strontium-90 (Sr-90) that had been separated from plutonium production waste stored in underground storage tanks on the Hanford Facility. Separation of cesium and strontium from tank waste occurred at B Plant.

WESF is a two-story, 1,858 m² (20,000 ft²) building approximately 48 m long, 30 m wide, and 12 m high (160 ft long, 98 ft wide, and 40 ft high), constructed of steel reinforced concrete that is partitioned into seven hot cells, the hot cell service area, operating areas, building service areas, and the pool cell area.

The hot cells, hot cell service area, operating areas, and building service areas supported encapsulation operations. Encapsulation included conversion of Cs-137 to cesium chloride and Sr-90 to strontium fluoride, placement of cesium chloride and strontium fluoride into double walled stainless steel capsules, and seal welding of the capsules. Leak tests were performed to confirm adequacy of the welds.

WESF stores 1,936 capsules: 1,335 of cesium and 601 of strontium. The cesium capsules are double wall stainless steel containers with a length of approximately 53 cm (21 in.) and a diameter of approximately 8 cm (3 in.). Strontium capsules have the same general dimensions but consist of a Hastelloy® inner capsule and a stainless steel outer capsule. Of the cesium capsules, 23 are referred to as Type-W overpacks. Type-W overpacks were fabricated and overpacked at the 324 Building from 1997 to 1999. Of these overpacks, 16 contain degraded cesium capsules. The other seven contain containers of cesium chloride that were packaged during cleanout of the 324 Building. Type-W overpacks are made of stainless steel and have a length of 55.4 cm (21.8 in.) and a diameter of 8.26 cm (3.25 in.). If additional capsules need to be overpacked, a welding process would be developed and implemented in Hot Cell G.

The WESF pool cell area provides the necessary storage capability for cesium and strontium capsules. Underwater storage of the capsules provides both radioactive shielding and heat removal.

® Hastelloy is a registered trademark of Haynes International, Kokomo, Indiana.

H3.1 Facility History, Function, Location, and Layout

Construction of WESF started in 1971 and was complete by 1973. Encapsulation operations at WESF began shortly after completion of construction and were complete by January 1985. By March 1985, WESF completed transition into a standby/surveillance mode.

WESF has stored encapsulated Cs-137 and Sr-90 since encapsulation operations began in 1974. The capsules were initially managed as a commercial product and were used in a number of applications throughout the United States. The primary commercial application was sterilization of medical equipment.

In August 1987, the *Resource Conservation and Recovery Act of 1976* (RCRA) became effective on the Hanford Facility for active management of mixed radioactive and hazardous waste.

On July 14, 1997, the U.S. Department of Energy (DOE) decided to end commercial application of the capsules, and they were reclassified as a mixed waste.

WESF consists of seven hot cells, the hot cell service area, operating areas, building service areas, and the pool cell area. WESF has three DWMUs: two operating and one initiating closure (see Section H3.3 for details of the three DWMUs).

The seven hot cells are identified as Hot Cells A through G. The hot cells provided necessary radioactive shielding and equipment to allow workers to perform encapsulation tasks. Due to the highly radioactive nature of Cs-137 and Sr-90, all handling of Cs-137, Sr-90, and capsules must be performed remotely.

- Hot Cell A provided the capability to package waste generated inside the hot cells into drums and remove the packaged waste from the hot cells for disposal.
- Strontium processing occurred in Hot Cell B and Hot Cell C. Processing included the receipt of strontium solution from B Plant, conversion of the solution to strontium fluoride, drying of strontium fluoride and placement into an inner capsule, and seal welding and leak testing of the inner capsule.
- Cesium processing occurred in Hot Cell D and Hot Cell E. Processing included receipt of cesium solution from B Plant, conversion of the solution to cesium chloride, removal of water from the cesium chloride, melting of the cesium chloride and placement into an inner capsule, and seal welding and leak testing of the inner capsule.
- Hot Cell F provided the capability to decontaminate and store the inner capsules.
- Hot Cell G provided the capability to weld, inspect, and decontaminate the outer capsules.

The service gallery is located on the south side of the hot cells and contained support equipment for the hot cell processes, including utility and auxiliary process piping. The operating gallery is located on the north side of the hot cells. Remote work in the hot cells was performed from the operating gallery using manipulators. Figures H1 through H4 show the WESF layout.

When encapsulation operations were completed in 1985, WESF was transitioned into a standby and surveillance mode. In this mode of operation, only equipment and instruments required for continued safe storage of the capsules remained operational. This included the operation and maintenance of the pool cells and support systems for Hot Cells F and G. The confinement ventilation system remained operable to provide containment of legacy radioactive contamination and to support surveillance operations.

In 2001, water sources to Hot Cells A through F were isolated, and manipulators were removed from Hot Cell A through Hot Cell E. Manipulators in Hot Cell F and Hot Cell G remain active.

In 2014, the WESF Stabilization and Ventilation Project was initiated to stabilize legacy contamination in the hot cells and K3 exhaust ventilation duct and resolve inadequacies in the K3 exhaust system by replacing it with a new system. This project will be used to meet the DOE-Richland Operations Office (RL) commitment to the DOE Office of Environmental Management's Safety, Security, and Quality Programs (EM-40) to complete WESF ventilation upgrades by the end of fiscal year (FY) 2016 (13-NSD-0042, *Revised Schedule for Completion of Waste Encapsulation and Storage Facility (WESF) 2004-2 Ventilation Upgrades*) and is the first step towards placing the capsules into a dry storage configuration.

H3.2 Products and Production Processes

WESF does not generate products or have any production processes. WESF currently acts as a storage facility for stainless steel capsules containing radioactive cesium chloride and strontium fluoride salts. These capsules are stored in the Pool Cells DWMU and can be placed into the Hot Cell G DWMU for inspection or if a capsule is suspected of leaking. The Hot Cell A through Hot Cell F DWMU is not needed for capsule or mixed waste storage (see Section H3.3 for details of the three DWMUs).

H3.3 Dangerous Waste Management and Units

The three DWMUs at WESF are shown in Figure H1. One DWMU consists of the pool cells, and a second consists of Hot Cell G. The Pool Cells and the Hot Cell G DWMUs are operational and necessary for storage of the capsules. The third DWMU consists of Hot Cells A through F. This DWMU is not necessary for storage of capsules at WESF, and it will be undergoing closure.

This plan addresses closure of the Hot Cell A through Hot Cell F DWMU. Closure of the other two operating DWMUs will be addressed in closure plans for each operating DWMU.

The Hot Cell A air lock, hot pipe trench, and K3 duct trench are included in this closure plan but are not part of the Hot Cell A through Hot Cell F DWMU. Even though these areas are not part of the DWMU, they will be grouted along with the hot cells to preclude the spread of contamination from the hot cells.

H3.4 Unit Description

This section provides a detailed description of the WESF Hot Cell A through Hot Cell F DWMU. This is one of three DWMUs at WESF and the DWMU undergoing the closure actions described in this plan.

As discussed in Section H3.1, Hot Cells A through E are deactivated, and no activities are performed in these hot cells. Hot Cells F and G have remained operational to provide the capability to inspect and store the capsules and retain the capability for future removal of the capsules from WESF. The following activities are performed in Hot Cells F and G:

- Capsules may be moved into Hot Cell G to be inspected.
- Capsules suspected of leaking would be moved into Hot Cell G for initial inspection. Leaking capsules would be moved to Hot Cell F for storage out of the pool cell. The capsules could also be stored in Hot Cell G; however, personnel access to the hot cell would be prevented.
- In the future, capsules will be loaded into canisters/casks in Hot Cell G to allow removal of the capsules from WESF.

Following completion of the initial closure activities, as discussed in Section H5.5, Hot Cell F will be no longer be available for use to store capsules. Hot Cell G will remain operational as an operating DWMU. Shielded storage will be provided in Hot Cell G and could be used to store several leaking capsules. This will allow personnel access to the hot cell while capsules are being stored.

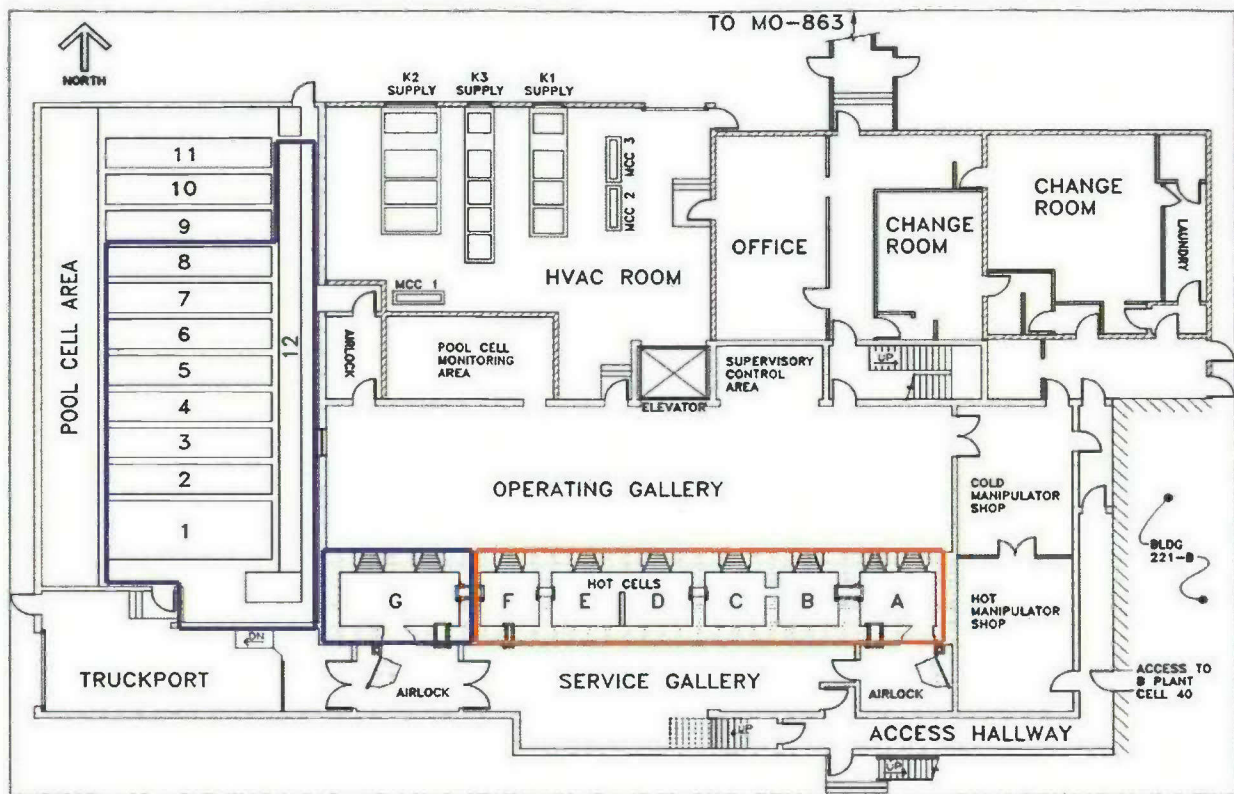


Figure H1. Waste Encapsulation and Storage Facility Pool and Process Cells

A plan view of the hot cells is shown in [Figure H1](#). Removable high-density concrete cover blocks, located at the top of the hot cells (on the floor of the canyon), provide access to the hot cells, pool cell area, and truck port from the canyon. The north and south walls of all the hot cells and both the east and west walls of Hot Cell A and Hot Cell G are 89 cm (35 in.) thick, high-density 3,760 kg/m³ (235 lb/ft³), reinforced concrete. Hot Cell A has an 89 cm (35 in.) high-density concrete shielding door for personnel entry from the service gallery.

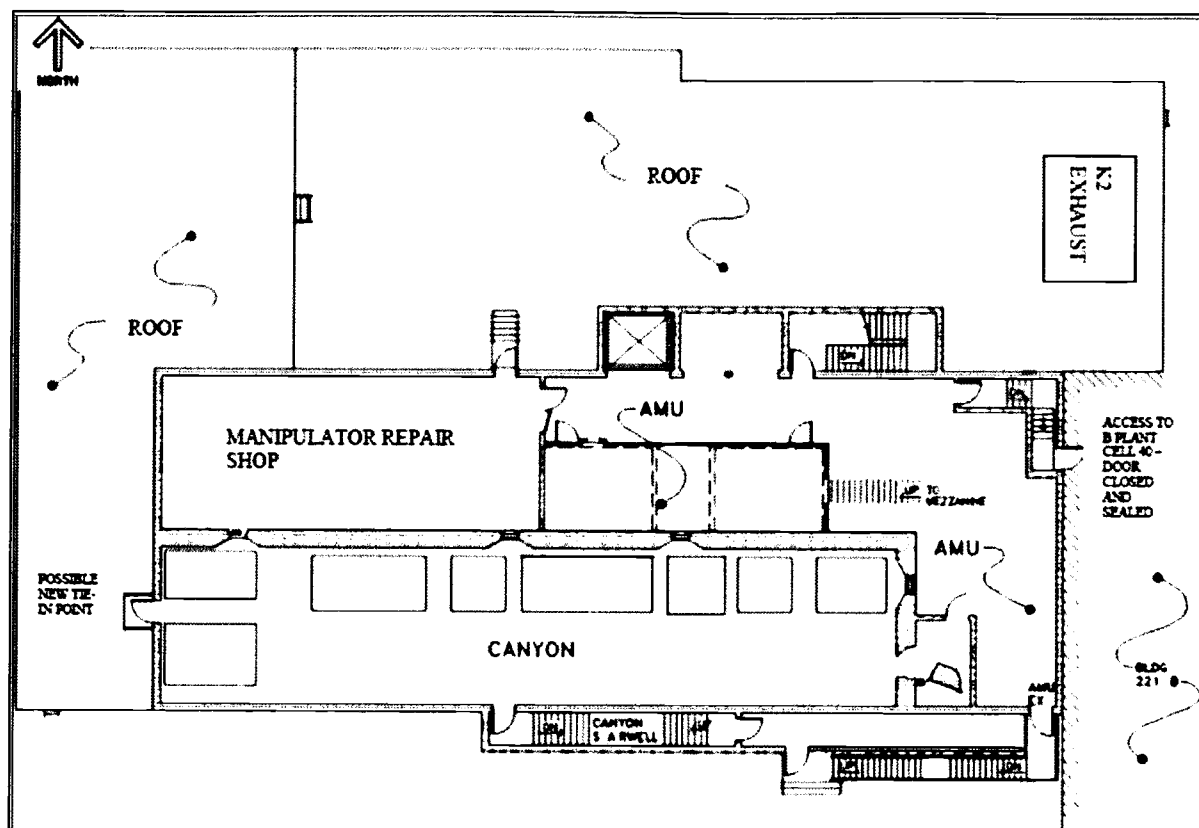
Process and/or service piping is embedded in the concrete walls of each hot cell. The pipes connect the hot cells to each other, as well as to the hot pipe trench, transmitter rooms, aqueous makeup (AMU) area, service gallery, and operating gallery. Process piping, including in-cell jumpers, was used to convey cesium and strontium solutions between tanks and other processing equipment. Service piping includes utility services such as air, water, and electricity that supported process equipment operation; service piping did not contain cesium or strontium.

All processing activities were completed before 1985, and the hot cells were placed into a standby/surveillance mode. Standby/surveillance actions for the hot cells included process equipment cleanout using a series of demineralized water flushes on all in-cell jumpers and tanks. Chemical flushes were then used to remove residual solids. After the chemical flushes, a final demineralized water flush was used. All jumpers were removed, with the tank nozzles remaining open, and the associated nozzle on the cell wall was capped.

Process feed lines from B Plant to WESF were flushed, as well as the drain lines from WESF to B Plant.

Hot cell piping and tanks were flushed using normal nuclear industry practices to remove any residual feed solutions, processing chemicals, and tank heels. Flushing was completed in 1985 before RCRA enactment.

- 1 No processing has occurred in the hot cells since they were placed in standby/surveillance mode. In
 2 2000, high-efficiency particulate air (HEPA) filters within the hot cells were replaced, and the used filters
 3 remain in the hot cells. Items remaining in the hot cells are hazardous debris.



4
 5 **Figure H2. WESF Second Floor Plan**

6 The following subsections provide detailed information on:

- 7 • Hot Cells A through F
 8 • Hot cell viewing windows
 9 • Hot cell manipulators
 10 • Hot pipe trench and K3 duct trench
 11 • Tank-100
 12 • WESF ventilation system

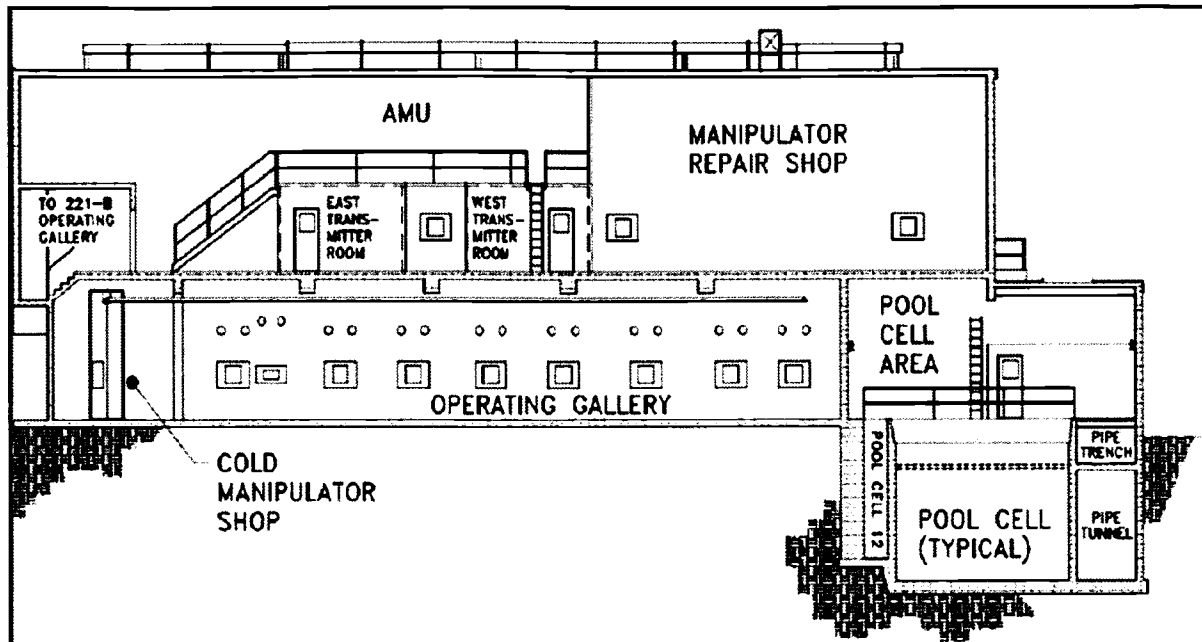


Figure H3. WESF East/West Sectional View

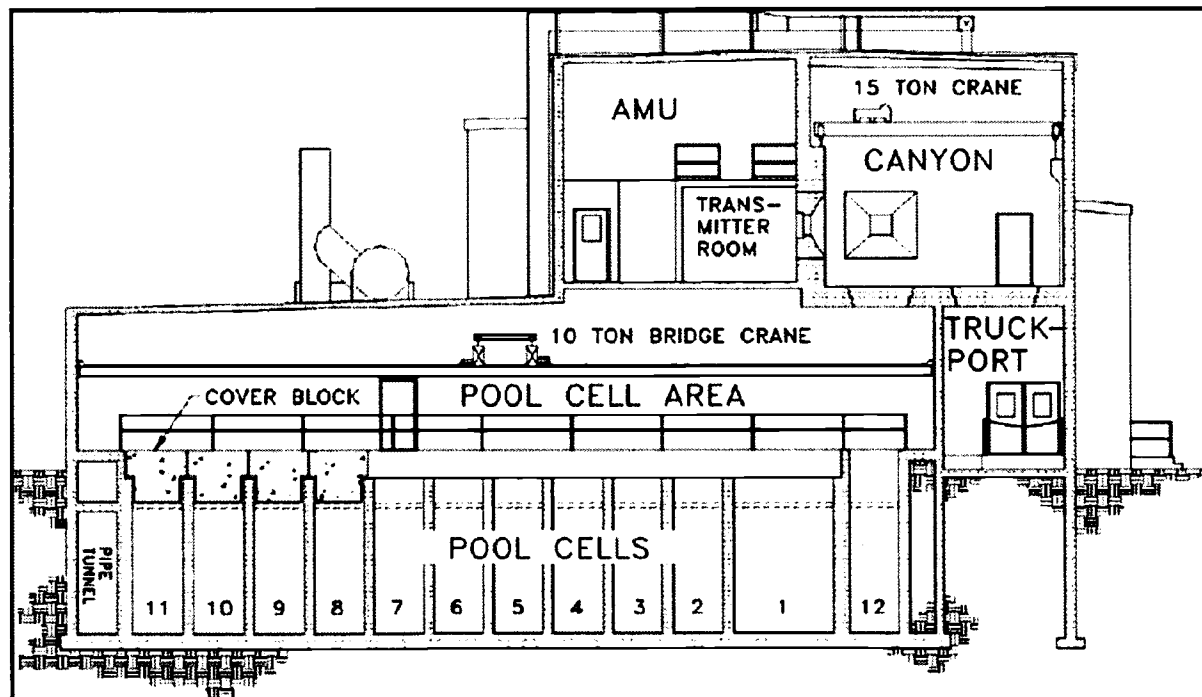


Figure H4. WESF North/South Sectional View

1 H3.4.1 Hot Cell A

2 Hot Cell A contains equipment that was required for handling high dose radioactive solid waste from the
3 other hot cells and placing it in 208 L (55 gal) drums. The inside dimensions of Hot Cell A are 3 m
4 (10 ft) long by 2.4 m (8 ft) wide by 4.1 m (13.5 ft) high. The floor and walls are lined with 14-gauge
5 304L stainless steel. Figure H5 is an illustration of Hot Cell A. It is an elevation looking south. Hot Cell
6 B is located to the west.

7 The wall between Hot Cell A and the adjacent Hot Cell B contains a 1.2 m (4 ft) by 2.4 m (8 ft) by 1.2 m
8 (4 ft) stainless steel hood for receiving contaminated solid waste. A pass-through with doors is located
9 between the A Cell Hood and Hot Cell B. Pass-throughs were installed to allow solid waste and small
10 equipment to pass between hot cells or other areas. A second pass-through with doors is located between
11 the A Cell Hood and the service gallery (on the south wall of the A Cell Hood). A sump is located along
12 the south wall of the hot cell. It is a small approximately 30 cm by 40 cm by 20 cm deep (12 in. by 16 in.
13 by 8 in. deep) open-topped recess in the floor. A steam eductor (not located in the hot cell) was used to
14 remove liquids that collected in the sump.

15 Hot Cell A does not contain any process piping. Radioactive contamination in Hot Cell A and the A Cell
16 Hood is the result of the waste packaging process and consists of surface contamination. Contamination
17 remaining within Hot Cell A and the Hot Cell A Hood is less than the contamination within the other hot
18 cells because during WESF operations, Hot Cell A and the Hot Cell A Hood were periodically
19 decontaminated to a level that would allow manned entry.

20 This hot cell is equipped with a shielded personnel entry door accessible from the Hot Cell A air lock
21 located at the east end of the service gallery. Hot Cell A contains the following equipment:

- 22 • Handling equipment for 208 L (55 gal) drums (drum dolly lift runs north and south underneath
23 the A Cell Hood to allow the drum to be positioned for loading and removal from the hot cell).
- 24 • Hot Cell A Hood.
- 25 • Service piping necessary to support encapsulation operations.
- 26 • Two HEPA filters installed in the hot cell exhaust ventilation ducting.
- 27 • Two used HEPA filters that were replaced in 2000 and remain on the hot cell floor.

28 Table H1 provides additional details for each listed item.

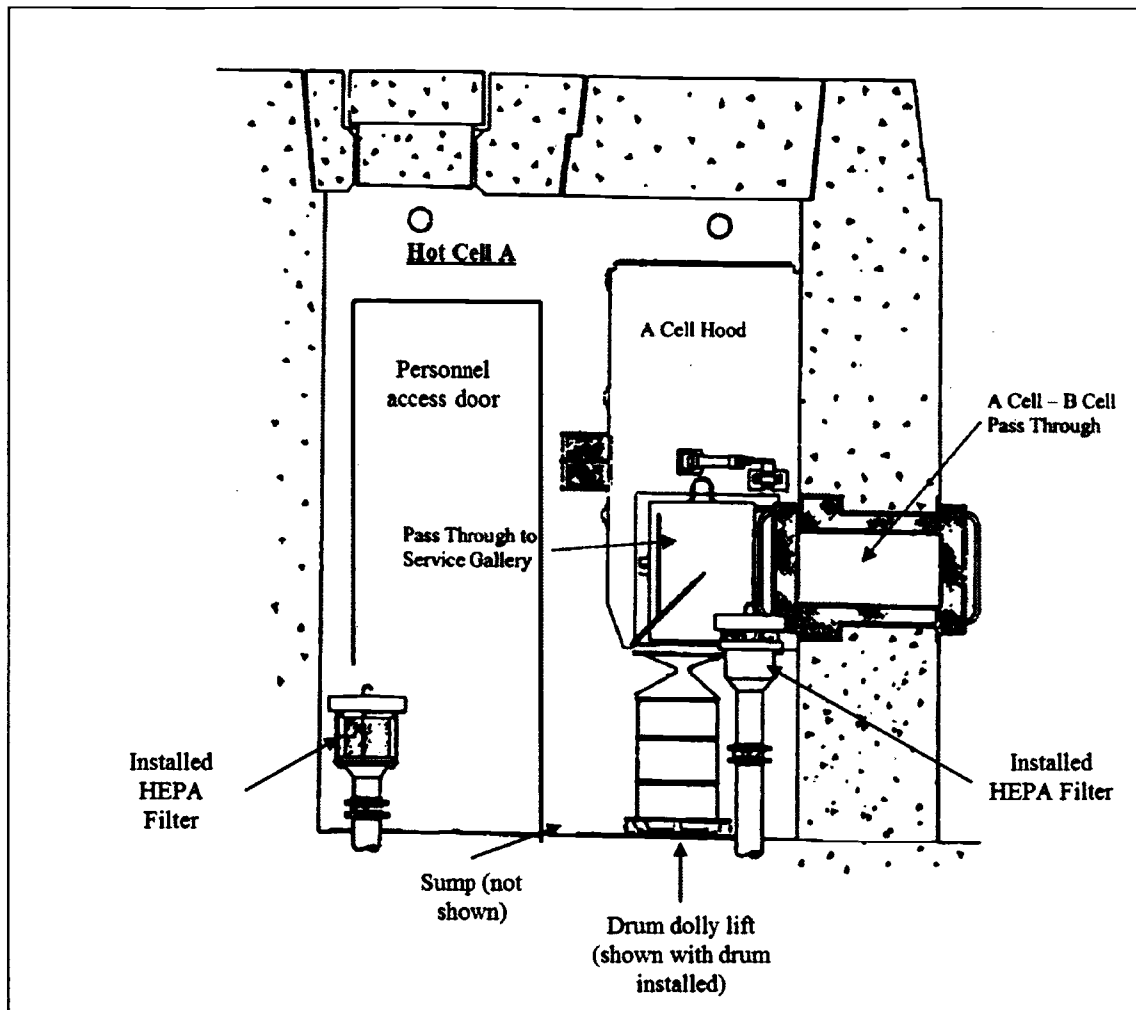


Figure H5. Hot Cell A

H3.4.2 Hot Cell B

Hot Cell B contains equipment that was used for strontium wet chemistry processing. This processing included the receipt of strontium nitrate from B Plant, conversion to strontium fluoride which was a precipitate, filtration to remove the precipitate, removal of the filtrate from the filter, placement of the filtrate into trays, and heating to remove water from the filtrate.

The inside dimensions of Hot Cell B are 2.4 m (8 ft) long by 2.4 m (8 ft) wide by 3.9 m (13 ft) high. The rear half of the Hot Cell B floor is elevated 56 cm (22 in.) and is 1.2 m (4 ft) wide. The wall between Hot Cells A and B is approximately 89 cm (35 in.) thick and is constructed from high-density reinforced structural concrete 3,760 kg/m³ (235 lb/ft³). The wall between Hot Cell B and Hot Cell C is approximately 51 cm (20 in.) thick and is constructed from reinforced structural concrete 2,400 kg/m³ (150 lb/ft³). The floor and lower portion of the walls are lined with 14-gauge 304L stainless steel. Figure H6 is an illustration of Hot Cell B. It is an isometric looking to the southwest. Hot Cell A is to the east, and Hot Cell C is to the west.

A pass-through with doors is located between the A Cell Hood and Hot Cell B (Figure H5).

A pass-through without doors is located between Hot Cells B and C that was used to pass small equipment and solid waste between the hot cells.

1 A sump is located on the west wall of the hot cell next to the elevated portion of the hot cell. It is a small
2 30 cm by 40 cm by 20 cm deep (12 in. by 16 in. by 8 in. deep) open-topped recess in the floor. A steam
3 eductor (not located in the hot cell) was used to remove liquids that collected in the sump.

4 Hot Cell B contains the following equipment:

- 5 • Feed metering tank (TK-B-1) located on the south wall.
- 6 • Supernate holding tank (TK-B-2) located in the elevated portion of the hot cell.
- 7 • Waste holding tank (TK-B-4) located in the wall between Hot Cell B and Hot Cell C.
- 8 • Precipitator tank (TK-B-5) located in the elevated portion of the hot cell.
- 9 • Strontium filters (F-B6-1 to F-B6-5) located on the floor on the east side of the hot cell.
- 10 • Strontium furnace (E-B-8) located in the wall between Hot Cell B and Hot Cell C.
- 11 • Process and service piping necessary to support encapsulation operations.
- 12 • Two HEPA filters installed in the hot cell exhaust ventilation ducting as well, as two used HEPA
13 filters that were replaced in 2000 and allowed to remain on the hot cell floor.
- 14 • Four trays containing floor sweepings located inside the strontium furnace (E-B-8).

15 Table H1 provides additional details for each listed item.

16 When the WESF strontium encapsulation mission was completed in 1985, the following tasks were
17 performed to clean out and empty the tanks in Hot Cell B (SD-WM-ER-022, *WESF Strontium Line*
18 *Standby/Surveillance*):

- 19 • All process feed lines and drain lines from B Plant were flushed with demineralized water.
- 20 • All in-cell process pipes and tanks (including TK-B-1, TK-B-2, TK-B-4, and TK-B-5) were
21 flushed with demineralized water.
- 22 • Sodium bicarbonate and caustic were used to flush TK-B-2, TK-B-4, and TK-B-5.
- 23 • Nitric acid was then added to TK-B-2, TK-B-4, and TK-B-5, and the resulting solution
24 was reprocessed.
- 25 • All in-cell process pipes and tanks (including TK-B-1, TK-B-2, TK-B-4, and TK-B-5) were again
26 flushed with demineralized water.
- 27 • Interiors of electrical conduits were wiped with a damp sponge.
- 28 • All in-cell jumpers on the tanks were removed and remained open to allow venting.

29 As a part of hot cell cleanup activities, loose material remaining on the Hot Cell B and Hot Cell C floors
30 was swept up and placed into trays that were then stored inside the strontium furnace. The trays contain
31 approximately 0.6 kg (1.3 lb) of material. This material in the trays includes strontium fluoride and
32 processing debris, including metal shavings, failed manipulator components, as well as any other debris
33 that was on the floor of the hot cell. Each tray is 26 cm (10.25 in.) by 8 cm (3.125 in.).

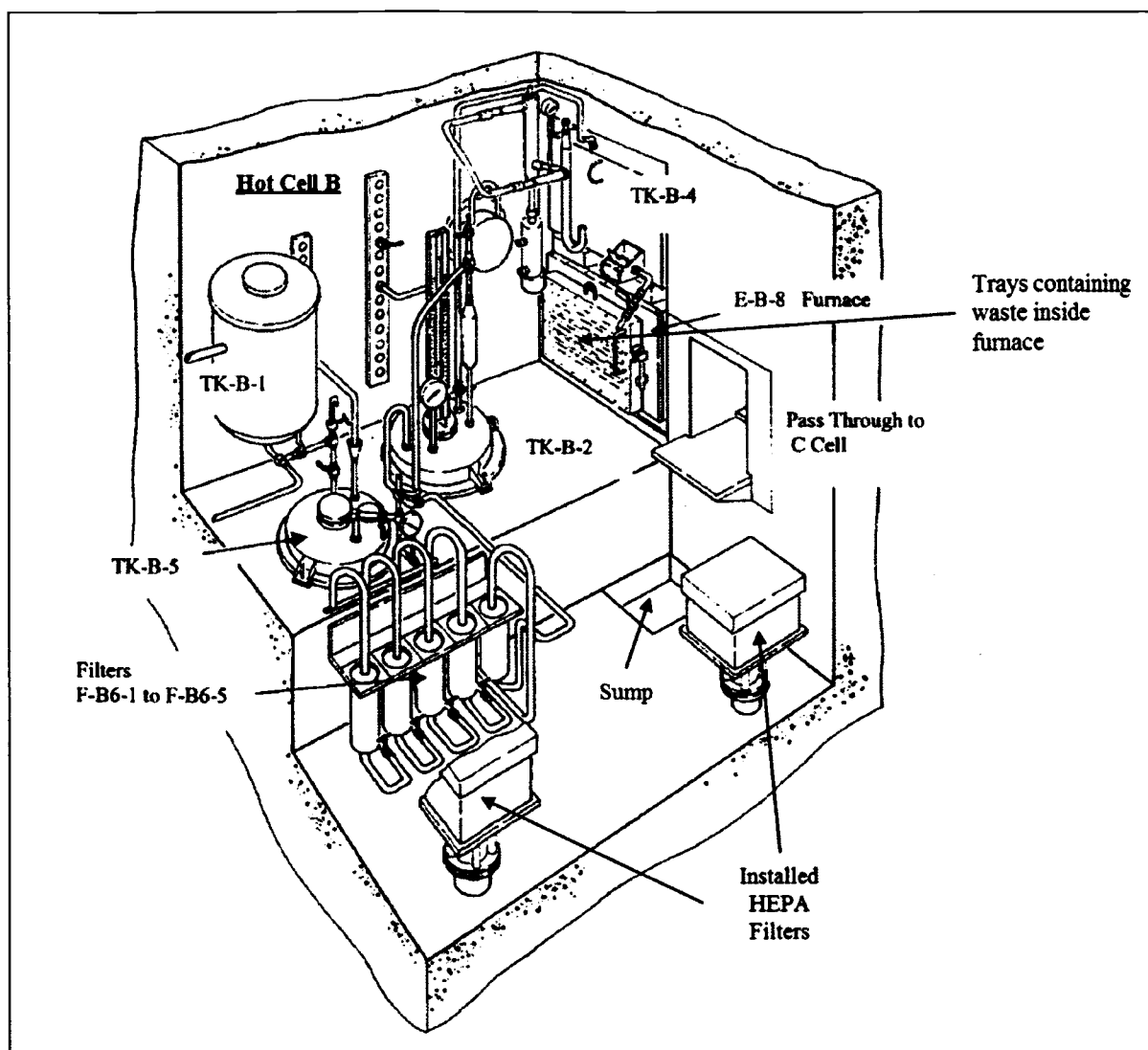


Figure H6. Hot Cell B

H3.4.3 Hot Cell C

Hot Cell C contains equipment that was used for the strontium fluoride encapsulation process. Processing consisted of removing the trays from the furnace, removing strontium fluoride from the trays, placing strontium fluoride in the inner capsule, compacting the material, welding the capsule end cap, and leak testing the inner capsule.

The inside dimensions of Hot Cell C are 2.4 m (8 ft) long by 2.4 m (8 ft) wide by 3.9 m (12.8 ft) high. The rear half of the Hot Cell C floor is elevated 22 in. and is 1.2 m (4 ft) wide. The walls between Hot Cells B and C and between Hot Cells C and D are approximately 51 cm (20 in.) thick and are constructed from reinforced structural concrete $2,400 \text{ kg/m}^3$ (150 lb/ft³). The floor and lower portion of the walls are lined with 14-gauge 304L stainless steel. Figure H7 is an illustration of Hot Cell C. It is an isometric looking to the southeast. Hot Cell B is to the east, and Hot Cell D is to the west.

The rear half of the hot cell floor is elevated 56 cm (22 in.) to form a bench that contains two shielded storage locations and the compactor foundation. The wall between Hot Cells C and B contains the strontium waste tank (TK-B-4) and strontium furnace (E-B-8).

1 There are two pass-throughs: one is an open pass-through to Hot Cell B, and the second is a pass-through
2 with doors to Hot Cell D. A sump is located on the east wall of the hot cell next to the elevated portion of
3 the hot cell. It is a small 30 cm by 40 cm by 20 cm deep (12 in. by 16 in. by 8 in. deep) open-topped
4 recess in the floor. A steam eductor (not located in the hot cell) was used to remove liquids that collected
5 in the sump.

6 Hot Cell C contains the following equipment:

- 7 • Shielded storage locations (TK-C-5A and TK-C-5B).
- 8 • Strontium compactor (C-C-4).
- 9 • Process and service piping necessary to support encapsulation operations.
- 10 • Two HEPA filters installed in the hot cell exhaust ventilation ducting, as well as two used HEPA
11 filters that were replaced in 2000 and allowed to remain on the hot cell floor.
- 12 • Two 61 cm (24 in.) long threaded capped pipes, containing 1.2 kg (2.6 lb) of floor sweepings, that
13 are located in the southwest corner of the cell on wall brackets above the bench floor.

14 Table H1 provides additional details for each listed item.

15 When the WESF strontium encapsulation mission was completed in 1985, the following tasks were
16 performed to clean out Hot Cell C (SD-WM-ER-022):

- 17 • All process feed lines and waste lines from B Plant were flushed with demineralized water.
- 18 • All in-cell process pipes were flushed with demineralized water.
- 19 • Interiors of electrical conduits were wiped with a damp sponge.
- 20 • All in-cell jumpers were removed and remained open to allow venting.

21 As a part of hot cell cleanup activities, loose material remaining on the Hot Cells B and C floors was
22 swept up and placed inside capped pipes. Material in the pipes includes strontium fluoride, as well as any
23 other debris that was on the floor of the hot cell.

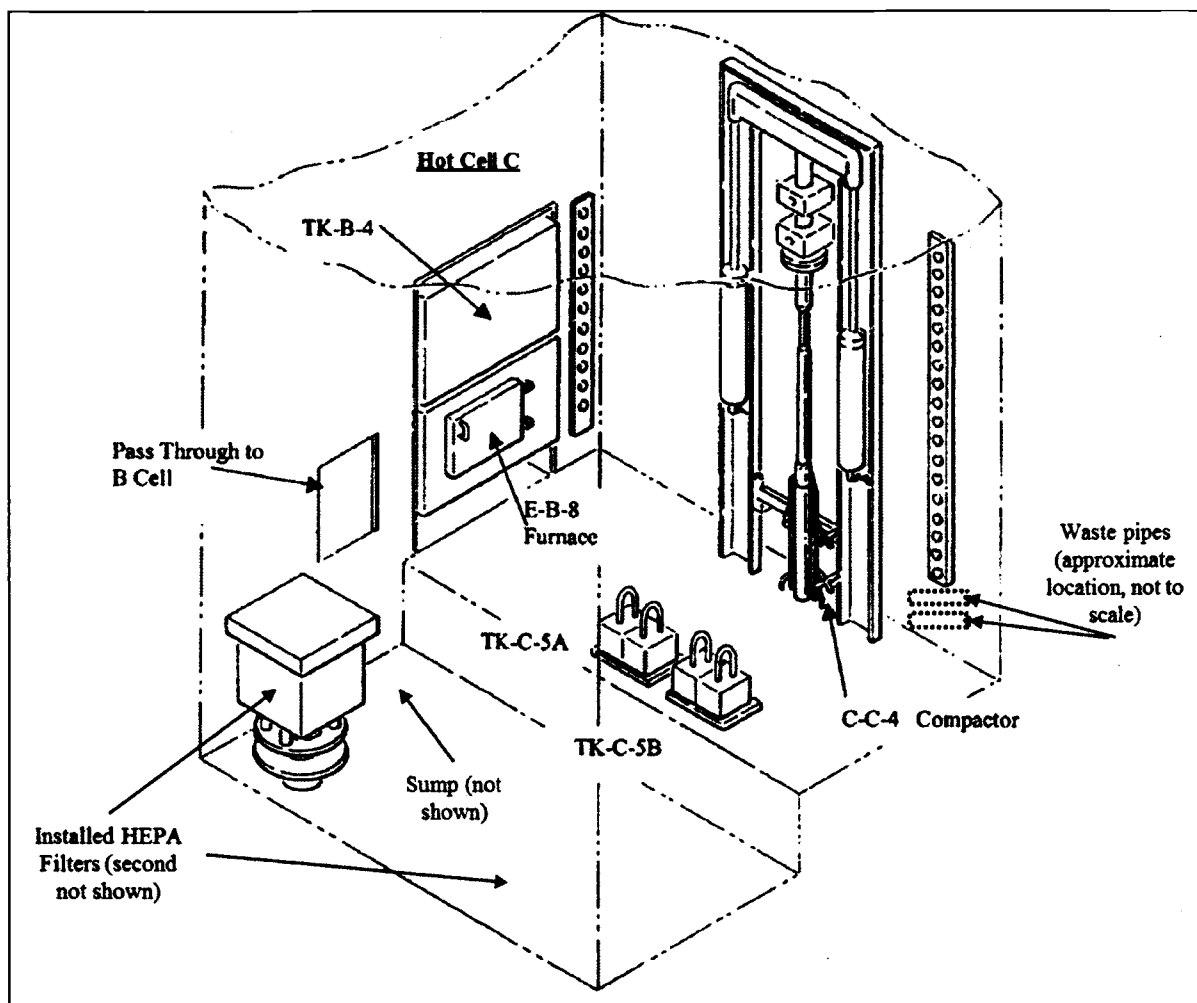


Figure H7. Hot Cell C

H3.4.4 Hot Cell D and Hot Cell E

Hot Cells D and E contain equipment that was used for conversion and encapsulation of cesium chloride. Processing in Hot Cell D consisted of receiving cesium carbonate feed from B Plant and converting it to cesium chloride. Processing performed in Hot Cell E consisted of heating the cesium chloride to remove the water and melt the cesium chloride, pouring the molten salt into the inner capsule, and preparing the capsule for welding. The inner capsule was welded in Hot Cell D, and leak testing was performed in Hot Cell E.

This double hot cell is approximately 5.5 m (18 ft) long by 2.4 m (8 ft) wide by 3.9 m (12.8 ft) high and is partitioned in the middle by a cell parapet wall that is 1.2 m (4 ft) wide by 2.4 m (8 ft) high and 20.3 cm (8 in.) thick. The rear half of the Hot Cell D portion of the floor is elevated approximately 25 cm (10 in.) and is 1.2 m (4 ft) wide. The walls between Hot Cells C and D and between Hot Cells E and F are approximately 51 cm (20 in.) thick and are constructed from reinforced structural concrete 2,400 kg/m³ (150 lb/ft³). The floor and lower portion of the walls are lined with 14-gauge Inconel® 600 alloy.

® Inconel is a registered trademark of Special Metals Corporation, New Hartford, New York.

Figure H8 is an illustration of this double hot cell. It is an isometric looking to the southeast. Hot Cell C is to the east, and Hot Cell F is to the west.

A recess in the elevated section of Hot Cell D is provided for placement of the cesium converter tank (TK-D-2). A pass-through with doors is located between Hot Cells C and D and between Hot Cells E and F for passage of small equipment and solid waste. A sump is located on the floor between Hot Cells D and E. It is a small 30 cm by 40 cm by 20 cm deep (12 in. by 16 in. by 8 in. deep) open-topped recess in the floor. A steam eductor (not located in the hot cell) was used to remove liquids that collected in the sump.

Hot Cell D contains the following equipment:

- Feed metering tank (TK-D-1)
- Converter tank (TK-D-2)
- Hydrochloric acid scrubbing equipment (TK-D-5, T-D-5, and T-D-7)
- Vacuum surge tank (TK-D-13)
- Condensers (E-D-4 and E-D-4A)
- Process and service piping necessary to support encapsulation operations
- Two HEPA filters installed in the hot cell exhaust ventilation ducting, as well as two used HEPA filters that were replaced in 2000 and allowed to remain on the hot cell floor

Hot Cell E contains the following equipment:

- Shielded storage location (TK-E-9)
- Helium leak check chamber (TK-E-12)
- Process and service piping necessary to support encapsulation operations
- Two HEPA filters installed in the hot cell exhaust ventilation ducting, as well as two used HEPA filters that were replaced in 2000 and allowed to remain on the hot cell floor

Table H1 provides additional details for each listed item.

When the cesium encapsulation mission was completed, the following tasks were performed (SD-WM-ER-014, *WESF Cesium Line Standby/Surveillance*):

- Demineralized water flush on all in-cell jumpers, tanks, and process piping (including TK-D-1, TK-D-2, TK-D-5, T-D-5, and T-D-7).
- Demineralized water flush on the process feed line between TK-D-1 and B Plant.
- Demineralized water flush on the drain line between TK-D-1 and B Plant.
- Flush of TK-D-2 with nitric acid and caustic solution to remove solids.
- Demineralized water flush on embedded service piping in Hot Cells D and E.
- Wiping of embedded electrical conduits with a damp sponge.
- Removal and opening of all in-cell jumpers on tanks to allow venting.

The shielded storage location (TK-E-9) and helium leak chamber (TK-E-12) contained complete capsules only. This equipment was not flushed as a part of standby/surveillance activities. SD-WM-ER-014 does not directly state how portions of the vessel ventilation system (condensers E-D-4 and E-D-4A and vacuum surge tank TK-D-13) were placed in standby. It is likely but not certain that they were also flushed with demineralized water with the rest of the in-cell jumpers and piping.

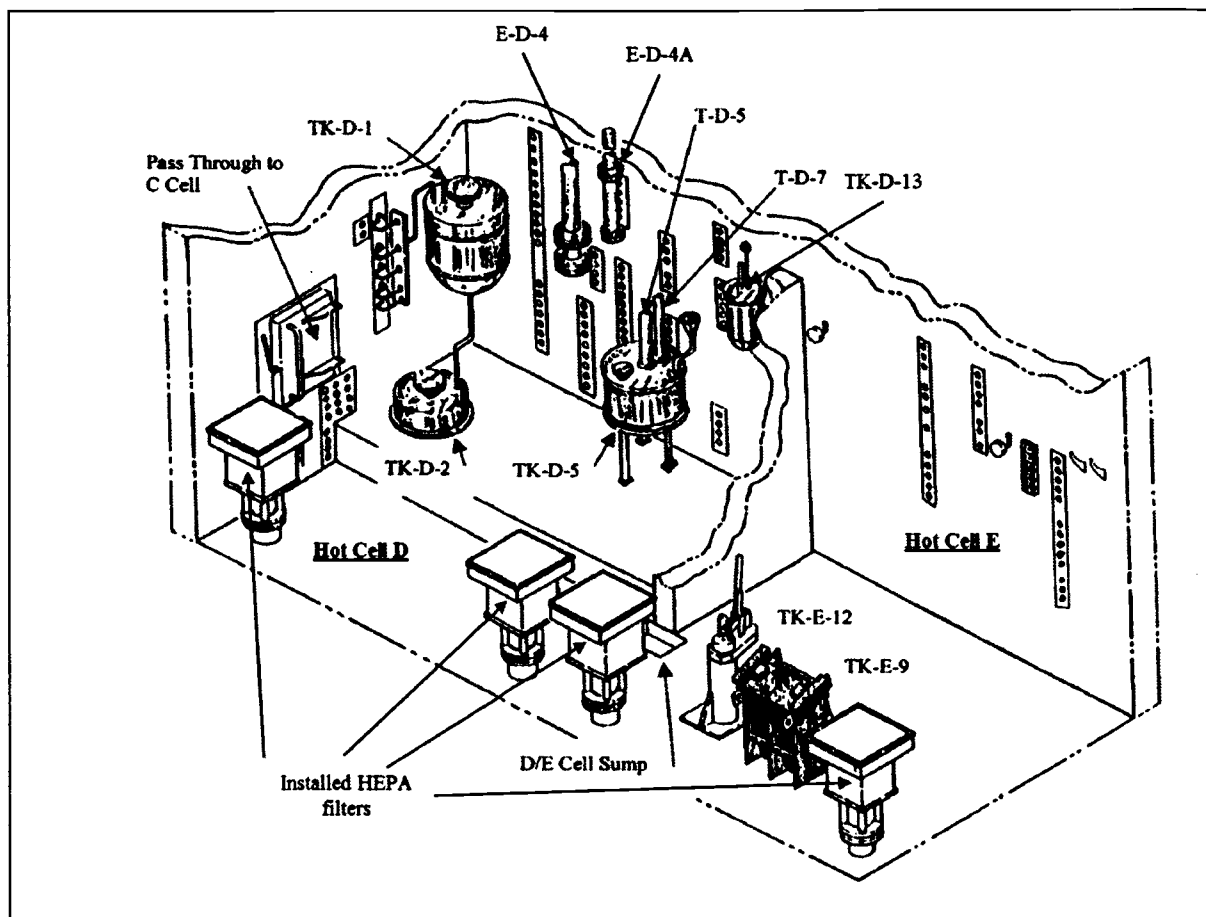


Figure H8. Hot Cell D and Hot Cell E

H3.4.5 Hot Cell F

Hot Cell F contains equipment that was used for storage and decontamination of the inner capsules.

The inside dimensions of Hot Cell F are 2.4 m (8 ft) long by 2.4 m (8 ft) wide by 3.9 m (12.8 ft) high. The rear portion of the hot cell floor is elevated 55.9 cm (22 in.) and is 0.6 m (2 ft) wide. The wall between Hot Cells F and G is approximately 89 cm (35 in.) thick and is constructed from high-density reinforced structural concrete 3,760 kg/m³ (235 lb/ft³). The floor and lower portion of the walls are lined with 14-gauge 304L stainless steel. Figure H9 is an illustration of the hot cell. It is an isometric looking southeast. Hot Cell E is to the east, and Hot Cell G is to the west.

A recess in the elevated portion of the hot cell floor is provided for placement of a shielded capsule storage location. A pass-through with doors is located between Hot Cells E and F and between Hot Cells F and G for passage of small equipment and solid waste. There is also a pass-through with doors between Hot Cell F and the service gallery on the south wall. Hot Cell F does not contain any process piping.

A sump is located on the floor on the east wall of the hot cell, next to the elevated area. It is a small 30 cm by 40 cm by 20 cm deep (12 in. by 16 in. by 8 in. deep) open-topped recess in the floor. A steam eductor (not located in the hot cell) was used to remove liquids that collected in the sump. After water sources to the hot cells were isolated in 2001, an air driven sump pump was installed in Hot Cell F for transfer of collected liquids to the radioactive low-level waste (LLW) tank (Tank-100). As part of the closure of Hot Cells A through F, this transfer line will be isolated.

Hot Cell F contains the following equipment:

- Capsule scrubber (TK-F-1)
- Electropolisher (TK-F-2)
- Capsule rinse location (TK-F-4)
- Storage location (TK-F-5)
- Air receiver tank (TK-F-6)
- Modular storage rack
- Service piping necessary to support encapsulation operations
- Two HEPA filters installed in the hot cell exhaust ventilation ducting as well as two used HEPA filters that were replaced in 2000 and allowed to remain on the hot cell floor
- Manipulators that will be removed during closure

Table H1 provides additional details for each listed item.

During processing, the cell was rinsed with water to minimize contamination spread to the capsules, prior to transfer to Hot Cell G. This practice kept the contamination levels in Hot Cell F low. Since the end of encapsulation operations, the hot cell has been swept and vacuumed, and miscellaneous parts/tools have been removed.

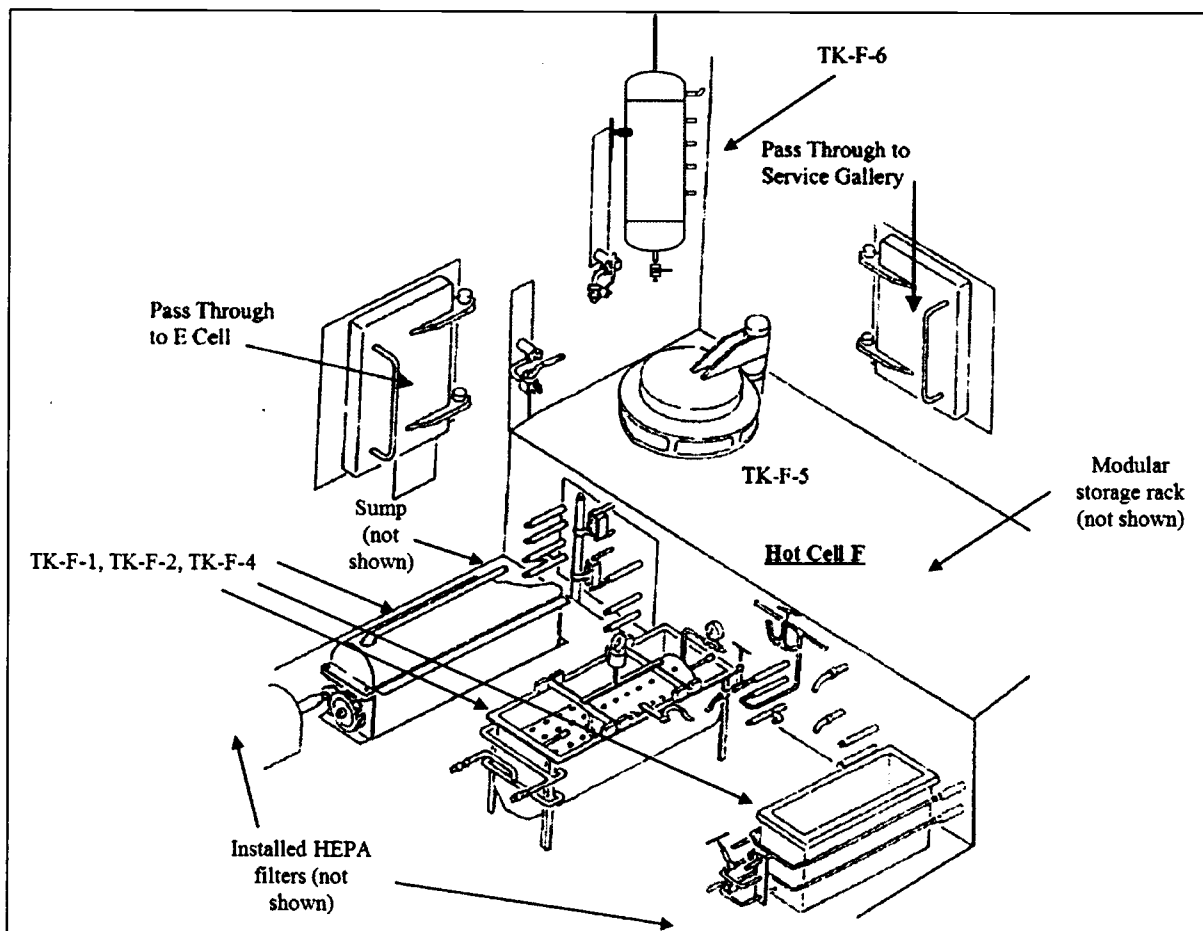


Figure H9. Hot Cell F

Table H1. WESF Hot Cells A through F Contents

Hot Cell	Hot Cell Contents	Content Description	Waste Description
A	Drum Dolly Lift	Equipment required for handling 208 L (55 gal) drums used to package the radioactive solid waste from the other hot cells.	Hazardous Debris
	Hood	1.2 m (4 ft) by 2.4 m (8 ft) by 1.2 m (4 ft) stainless steel hood.	
	HEPA Filters	Filters replaced in 2000; old filters remain on cell floor.	
	Service Piping Associated with Processing	Air and liquid service embedded lines from outside service areas and electrical lines.	
B	Four Trays of Strontium Floor Sweepings Inside the Furnace	Boats are open and contain strontium floor sweepings. Approximately 0.6 kg (1.2 lb) total waste.	Waste/Waste Residues
	Strontium Filter Assembly (F-B6-1 to F-B6-5)	Each filter housing is approximately 27.3 cm (10.8 in.) tall with 10.2 cm (4 in.) diameter; approximately 45% void. The filter housings were opened, and the sintered metal filters were removed. Both the filter housings and the filters were free of obvious material.	Hazardous Debris
	Process and Service Piping Associated with Processing	Process piping used to convey strontium solutions between tanks and processing equipment. Air and liquid service embedded lines from outside service areas and electrical lines. Embedded lines used as electrical conduits during processing were wiped internally with damp sponges to remove internal contamination.	
	HEPA Filters	Filters replaced in 2000; old filters remain on cell floor.	
	Feed Metering Vessel Tank (TK-B-1)	Cylindrical tank, vertical and unbaffled, 68.6 cm (27 in.) tall with 52.7 cm (20.8 in.) diameter. Tank has nozzles open to the cell atmosphere.	
	Supernatant Holding Tank (TK-B-2)	Cylindrical tank, vertical and unbaffled, with a dish shaped bottom with flanged heads; 91.4 cm (36 in.) tall with 61 cm (24 in.) diameter. Tank has nozzles open to the cell atmosphere.	

Table H1. WESF Hot Cells A through F Contents

Hot Cell	Hot Cell Contents	Content Description	Waste Description
	Waste Holding Tank (TK-B-4)	Rectangular tank, vertical and unbaffled. 50.8 cm (20 in.) wide, 76.2 cm (30 in.) long, and 52.1 cm (21 in.) tall. Tank has nozzles open to the cell atmosphere. Located in the wall between B and C cells.	
	Precipitator Tank (TK-B-5)	Cylindrical, vertical, unbaffled tank in the upper section and conical tank in the lower section. Upper section is 43.2 cm (17 in.) high with 61 cm (24 in.) diameter. Lower section is 48.3 cm (19 in.) high and tapers from a diameter of 61 cm (24 in.) to 15.2 cm (6 in.). Tank has nozzles open to the cell atmosphere.	
	Strontium Furnace (E-B-8)	Rectangular, approximately 52.7 cm (21 in.) wide, 76.2 cm (30 in.) long, and 52.1 cm (21 in.) tall. Located in wall between B and C cells.	
C	Process and Service Piping Associated with Processing	Process piping used to convey strontium solutions between tanks and processing equipment. Embedded lines, used as electrical conduits, raw water supply, compressed air, and argon supply.	Hazardous Debris
	HEPA Filters	Filters replaced in 2000; old filters remain on cell floor.	
	Strontium Compactor (C-C-4)	Used to compact strontium fluoride material in the capsule.	
	Shielded Storage Locations (TK-C-5A and TK-C-5B)	Identical shielded storage locations recessed in the C Cell floor. Annular configuration is approximately 45.7 cm (18 in.) long. These locations were used to store inner capsules and did not contain unencapsulated strontium.	
	Two Closed Waste Pipes	Two closed waste pipes with approximately 61 cm (24 in.) long with a pipe cap at each end with material swept from the floor of B Cell or C Cell after it was dried and reduced in volume in the furnace. These containers are stored in the southwest corner of the cell on wall brackets above the bench floor. Total approximate waste volume is 1.2 kg (2.6 lb).	Waste/Waste residues

Table H1. WESF Hot Cells A through F Contents

Hot Cell	Hot Cell Contents	Content Description	Waste Description
D/E	Process and Service Piping Associated with Processing	Process piping used to convey cesium solutions between tanks and processing equipment. Air and liquid service embedded lines from outside service areas and electrical lines.	Hazardous Debris
	Feed Metering Tank (TK-D-1)	Cylindrical tank 68.6 cm (27 in.) tall with 53.34 cm (21 in.) diameter. Tank has nozzles open to the cell atmosphere.	
	Converter Tank (TK-D-2)	Cylindrical tank 54.6 cm (21.5 in.) tall with 50.8 cm (20 in.) diameter. Tank has nozzles open to the cell atmosphere.	
	Hydrochloric Acid Scrubbing Equipment (TK-D-5, T-D-5, and T-D-7)	T-D-5 is 1.4 m (4.75 ft) tall, and T-D-7 is 1.9 m (6.3 ft) tall; both towers are 10.2 cm (4 in.) in diameter and contain 1.2 m (4 ft) of packing (pall rings). Tank has nozzles open to the cell atmosphere.	
	Vacuum Surge Tank (TK-D-13)	Cylindrical tank 16 in. tall with 8 in. diameter. The vacuum surge tank was part of the vessel ventilation system.	
	Condensers (E-D-4 and E-D-4A)	E-D-4 is a cylindrical tank approximately 140 cm (55 in.) tall with 20.3 cm (8 in.) diameter. E-D-4A is a cylindrical tank approximately 74 cm (29 in.) tall with 10.2 cm (4 in.) diameter. The condensers were part of the vessel ventilation system.	
	Shielded Storage Location (TK-E-9)	Rectangular storage location approximately 30.5 cm (12 in.) by 48.3 cm (19 in.) wide and 55.9 cm (22 in.) tall. This location was used to store inner cesium capsules and did not contain unencapsulated material.	
	Helium Leak Check Chamber (TK-E-12)	Outer shell with approximately 11.4 cm (4.5 in.) diameter and approximately 61 cm (24 in.) long. The helium leak chamber only contained completed inner capsules and did not contain unencapsulated material.	
	HEPA Filters	Filters replaced in 2000; old filters remain on cell floor.	

Table H1. WESF Hot Cells A through F Contents

Hot Cell	Hot Cell Contents	Content Description	Waste Description
F	HEPA Filters	Filters replaced in 2000; old filters remain on cell floor.	Hazardous Debris
	Manipulators	Manipulators will be removed prior to addition of grout.	
	Service Piping Associated with Processing	Air and liquid service embedded lines from outside service areas and electrical lines.	
	Capsule Scrubber (TK-F-1)	Open top rectangular tank approximately 78.7 cm (31 in.) long by 35.6 cm (14 in.) wide by 35.6 cm (14 in.) high. Contained complete capsules only.	
	Electropolisher (TK-F-2)	Open top rectangular tank approximately 78.7 cm (31 in.) long by 35.6 cm (14 in.) wide by 35.6 cm (14 in.) high. Contained complete capsules only.	
	Capsule Rinse Location (TK-F-4)	Open top rectangular storage location approximately 78.7 cm (31 in.) long by 35.6 cm (14 in.) wide by 35.6 cm (14 in.) high. This equipment contained capsules only.	
	Storage Location (TK-F-5)	Cylindrical storage location approximately 72.4 cm (29 in.) deep with 41.9 cm (17 in.) diameter. This storage location was used for the storage of capsules only.	
	Air Receiver Tank (TK-F-6)	Cylindrical storage location approximately 64.8 cm (26 in.) tall with 20.3 cm (8 in.) diameter. This tank was part of the clean air supply system. It provided clean air at a constant pressure to hot cell equipment.	
	Modular Storage Rack	Rack consists of open tubes used for storage of capsules.	

H3.4.6 Hot Cell Viewing Windows

Lead glass windows are provided for shielding and direct viewing into the hot cells from the operating gallery. The viewing windows are composed of 25.4 cm (10 in.) of 3.3 g/cm³ lead glass (hot cell side) and 39.6 cm (15.6 in.) of 6.2 g/cm³ lead glass (operating gallery side).

Oil between the glass sections allows light to pass through the windows. The soft lead glass is protected by cerium stabilized, nonbrowning, tempered glass on the hot cell side and tempered glass on the operating gallery side. The oil will be removed from the Hot Cells A through F windows, before start of closure, using the work package process including waste planning. The oil between the glass sections is a white mineral oil (Chemical Abstracts Service number 8042-47-5) with no hazardous properties.

Upon removal, the oil will be containerized and managed as a nondangerous maintenance waste.

Currently, the window in Hot Cell C is not clear enough to allow viewing into the hot cell. Viewing into Hot Cells A, B, D, and E is not possible because lighting inside the cells has failed.

H3.4.7 Hot Cell Manipulators

Hot Cell A has wall ports for four manipulators. Hot Cells B through F each have wall ports for two manipulators that can be installed or removed from the hot cells through 25.4 cm (10 in.) diameter ports in the wall.

Manipulators are removed from Hot Cells A through E, and plugs have been installed in the ports for contamination control.

Manipulators in Hot Cell F will be removed, and the ports will be plugged prior to the start of stabilization activities.

H3.4.8 Hot Pipe Trench and K3 Duct Trench

The hot pipe trench is a concrete channel, 1.5 m (5 ft) wide by 0.6 m (2 ft) deep, that contains the process feed piping that was used to transfer solutions from B Plant to WESF. The hot pipe trench also contains lines for transferring solutions from WESF back to B Plant.

The hot pipe trench is located beneath the floor of the hot cells and extends from Hot Cell G to the west wall of B Plant. At the west wall of B Plant, the hot pipe trench is reduced to a 35.6 cm (14 in.) stainless steel pipe encasement that terminates in Cell 39 at B Plant.

The walls of the hot pipe trench and encasement are constructed of high-density concrete and are lined with lead, where required, to provide shielding. B Plant has been isolated from WESF, and piping in the hot pipe trench is no longer used and is capped in B Plant.

When processing was completed at WESF before 1985, process transfer lines in the hot pipe trench were flushed with demineralized water. These lines have not been used for any processing since the WESF hot cells were placed in standby/surveillance mode. The transfer lines are expected to contain radiological contamination.

Process piping located in the hot pipe trench will not be filled with grout. The largest process feed pipe inside the hot pipe trench that will not be grouted is approximately 7.6 cm to 10.2 cm (3 to 4 in.) and will not cause structural integrity issues due to void space.

The K3 duct trench is approximately 0.6 m (2 ft) wide and 0.9 m (3 ft) deep. It runs underneath the hot cells and contains the K3 exhaust duct. Figure H10 shows the general configuration of the hot pipe trench, hot cells, and K3 duct trench. The elevated area is not present in all hot cells.

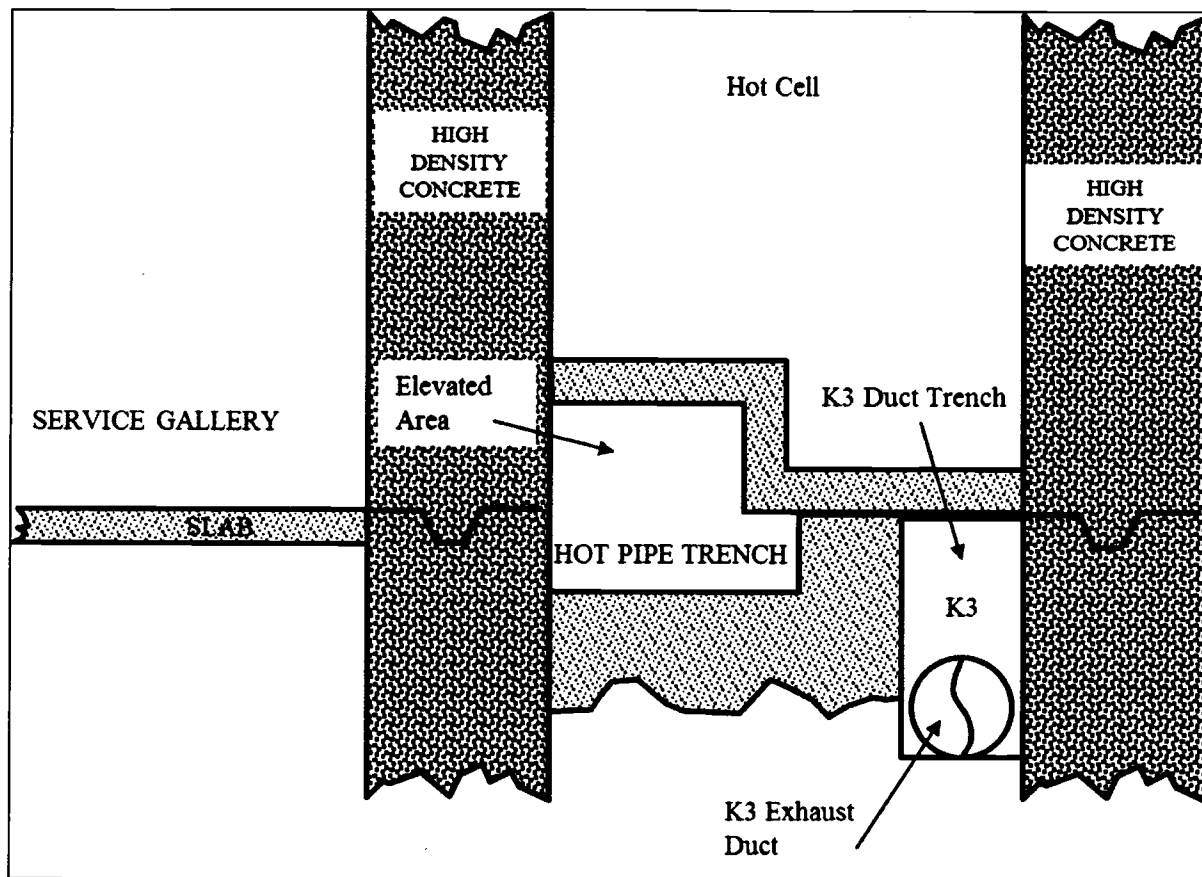


Figure H10. Hot Pipe Trench and K3 Duct Trench

H3.4.9 Tank-100

The WESF LLW collection tank (Tank-100) is an approximately 15,000 L (4,000 gal) stainless steel tank contained in a below-grade reinforced concrete vault with cover blocks. The tank is located on the outside of WESF, on the south side, and is not within a DWMU. The tank is under active ventilation from the K3 exhaust ventilation system and will be ventilated by the new system. Any liquid LLW generated in the hot cells would be transferred to Tank-100. As part of the closure activities, all hot cells (including Hot Cell G) will be isolated from this tank.

Tank-100 was replaced in 1998. Tank contents were sampled to support disposal of the removed tank and found to contain 1,1,1-trichloroethane. The original Tank-100 system, that was replaced in 1998, was clean closed in accordance with WAC 173-303-610, "Dangerous Waste Regulations," "Closure and Post-Closure," as documented by 98-EAP-588, "Closure Certification of the Waste Encapsulation and Storage Facility (WESF) Tank 100 (TK-100) System." 1,1,1-trichloroethane was not used at WESF after closure of Tank-100 in 1998, and no mixed waste management activities have occurred in the hot cells since the tank was replaced.

H3.4.10 WESF Ventilation System

The WESF ventilation system (Figures H11 and H12) is permitted for operation, under a Washington State Department of Health license and the Hanford Air Operating Permit, and is not part of the Hot Cell A through Hot Cell F DWMU. However, information is provided in this closure plan as part of the unit description to provide a complete understanding of the WESF facility.

1 The ventilation system at WESF is designed to produce pressure boundaries that prevent migration from
2 areas contaminated with radioactive particulates to areas with less potential for contamination to the
3 atmosphere. Contaminated areas are maintained at a negative pressure with respect to
4 uncontaminated areas.

5 A second major function of the WESF ventilation system is the removal of hydrogen gas generated from
6 the radiolysis of water resulting from the underwater storage of highly radioactive cesium and strontium
7 capsules in the WESF pool cells. Hydrogen removal from the hot cells is not a significant concern, even
8 if capsules are being stored in Hot Cells F or G, because all water sources have been removed from the
9 hot cells.

10 Four separate supply systems (K1, K2, K3, and K4) and three separate exhaust systems service WESF.
11 K1 and K3 systems are the only two that exhaust potentially contaminated air. The K2 exhaust system
12 ventilates normally clean areas of WESF. K1 and K3 exhaust systems combine after the respective
13 HEPA filters to exhaust air through a single monitored stack (296-B-10). Only portions of the K3
14 ventilation system that require grouting as part of the closure for the Hot Cell A through Hot Cell F
15 DWMU will be discussed further in this closure plan.

16 **H3.4.11 K3 Exhaust System**

17 The K3 exhaust system ventilates the canyon and hot cells. These are the most contaminated areas of the
18 building and are maintained at the most negative pressure. The K3 exhaust fan draws air from the canyon
19 and hot cells and passes it through the K3 HEPA filters before it exits through the monitored
20 296-B-10 stack.

21 Each hot cell has two exhaust paths to a common duct, and each exhaust path has one stage of HEPA
22 filtration. The final K3 HEPA filters consist of two parallel filter housings. Each filter housing unit is
23 located in a separate K3 filter pit.

24 The underground K3 exhaust duct, filter housings, and filter pit will be filled with grout to stabilize the
25 contamination contained with these areas. A new K3N ventilation system will be installed to replace the
26 function of the K3 exhaust system. The K3N system will consist of a filter housing with two redundant
27 exhaust fans. The filter housing will include two HEPA sections in series, with each HEPA section
28 consisting of six individual HEPA filters. It will ventilate the canyon, Hot Cell G, and Tank-100.

29 The fan will draw air from these spaces through the HEPA filter before it exits through the monitored
30 296-B-10 stack.

31

H3.4.12 Maximum Waste Inventory

WESF currently stores 1,936 capsules (the maximum number of capsules that are available to be stored). The waste volume inside each capsule is approximately 1 L (0.264 gal). Therefore, the maximum waste inventory of WESF is approximately 1,936 L (511 gal). Capsules are stored within the two operating DWMUs and will not be impacted by closure activities described in this plan.

Hot Cells A through F do not store any capsules and did not store any waste capsules after the effective date of RCRA at the Hanford Facility in August 1987.

The furnace, located in the wall between Hot Cells B and C, holds approximately 0.6 kg (1.3 lb) of waste in four trays inside the furnace. Hot Cell C holds approximately 1.2 kg (2.6 lb) of waste in two threaded, capped pipes.

The contents of Hot Cells A through F are detailed in Table H1.

H4 CLOSURE PERFORMANCE STANDARD

This closure plan covers initial closure actions for the Hot Cell A through Hot Cell F DWMU. Final clean closure of the Hot Cell A through Hot Cell F DWMU will be completed concurrent with closure activities for the remaining two operating WESF DWMUs. Closure performance standards for final closure of WESF will be based on WAC 173-303-610(2), which requires closure of the facility in a manner that accomplishes the following objectives:

- Minimize the need for further maintenance.
- Control, minimize, or eliminate, to the extent necessary, to protect human health and the environment (HHE), post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or atmosphere.
- Return the land to the appearance and use of surrounding land areas, to the degree possible, given the nature of the previous dangerous waste activity.

These performance standards are met through Sections H4.1 and H5.11.

Final clean closure of the remaining two DWMUs associated with the WESF Operating Unit Group will be addressed in WA7890008967, *Hanford Facility Dangerous Resource Conservation and Recovery Act Permit*, Revision 9, Part III, Operating Unit Group 14, Waste Encapsulation and Storage Facility.

H4.1 Clean Closure Levels

The Hot Cell A through Hot Cell F DWMU will be clean closed. Once the stabilized hot cells have been removed, the remaining underlying soil will be sampled and must meet clean closure levels. In accordance with WAC 173-303-610(2)(b)(i), clean closure levels for the soil are the numeric cleanup levels calculated using unrestricted use exposure assumptions according to WAC 173-340, "Model Toxics Control Act—Cleanup," hereinafter called MTCA, regulations (WAC 173-340-700, "Overview of Cleanup Standards," through WAC 173-340-760, "Sediment Cleanup Standards," excluding WAC 173-340-745, "Soil Cleanup Standards for Industrial Properties"). These numeric cleanup levels have been calculated according to the requirements of WAC 173-303-610(2)(b)(i) as of the effective date of the permit modification. These cleanup levels consider carcinogens, and noncarcinogens values.

The miscellaneous unit performance standards identified in WAC 173-303-680(2)(b)(i) through (4), as required by WAC 173-303-610(2)(b), are addressed in Table H2.

A null hypothesis is generally assumed to be true until evidence indicates otherwise. The null hypothesis, as defined in WAC 173-340-200, "Definitions," for Hot Cells A through F is that the underlying soil,

1 once the hot cells have been removed, is assumed to be above unrestricted use cleanup levels, commonly
2 called MTCA (WAC 173-340) Method B levels.

3 Therefore, the site is presumed to be contaminated. Rejection of the null hypothesis means that sampling
4 and analysis results of the site indicated soil contamination below the MTCA Method B levels. Sampling
5 and analysis in accordance with the sampling and analysis plan (SAP) (Section H5.12) will be used to
6 determine whether the null hypothesis can be rejected, thereby confirming that soil meets the closure
7 performance standards (MTCA Method B).

8 Since the DWMU is anticipated to be clean, should sampling and analysis determine that the null
9 hypothesis can be accepted, indicating that the site is contaminated, such an event will be considered an
10 unexpected event during closure, and the soil would then be identified as contaminated environmental
11 media and managed in accordance with Section H5.10.

Table H2 WAC 173-303-680(2) through (4) Requirements

Requirement	Method of Compliance
(2) Environmental performance standards. A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of dangerous waste or dangerous constituents from the unit. Permit terms and provisions must include those requirements in <u>WAC 173-303-630</u> through <u>173-303-670</u> , 40 CFR. Subparts AA through CC, which are incorporated by reference at <u>WAC 173-303-690</u> through <u>173-303-692</u> , <u>WAC 173-303-800</u> through <u>173-303-806</u> , part 63 subpart EEE (which is incorporated by reference at <u>WAC 173-400-075 (5)(a)</u>), and 40 CFR, Part 146 that are appropriate for the miscellaneous units being permitted. Protection of human health and the environment includes, but is not limited to:	The Hot Cell A through Hot Cell F DWMU will be closed in a manner that will ensure protection of HHE through the activities identified in this closure plan, which was developed in accordance with and to meet the regulatory requirements of <u>WAC 173-303-610</u> .
(a) Prevention of any releases that may have adverse effects on human health or the environment due to migration of wastes constituents in the groundwater or subsurface environment, considering:	Grouting of Hot Cells A through F will prevent migration of dangerous waste constituents to the groundwater or subsurface environment below WESF.
(i) The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;	
(ii) The hydrologic and geologic characteristics of the unit and the surrounding area;	
(iii) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;	
(iv) The quantity and direction of groundwater flow;	
(v) The proximity to and withdrawal rates of current and potential groundwater users;	
(vi) The patterns of land use in the region;	
(vii) The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food-chain crops and other vegetation;	
(viii) The potential for health risks caused by human exposure to waste constituents; and	
(ix) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.	
(b) Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:	Grouting of Hot Cells A through F will prevent migration of dangerous waste constituents to the soil surface under WESF. There are no surface waters or wetlands in the proximity of WESF.
(i) The volume and physical and chemical characteristics of the waste in the unit;	

Table H2 WAC 173-303-680(2) through (4) Requirements

Requirement	Method of Compliance
(ii) The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;	
(iii) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit	
(iv) The patterns of precipitation in the region;	
(v) The quantity, quality, and direction of groundwater flow;	
(vi) The proximity of the unit to surface waters;	
(vii) The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;	
(viii) The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;	
(ix) The patterns of land use in the region;	
(x) The potential for health risks caused by human exposure to waste constituents; and	
(xi) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.	
(c) Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:	<p>Grouting of Hot Cells A through F and the K3 ventilation system will prevent migration of dangerous waste constituents to the air outside of WESF.</p> <p>Contamination control methods, such as glove-bags and portable filtered ventilators, will be used during core drilling to prevent the spread of contamination.</p> <p>As the grout flows into placement locations, air will be displaced by the grout. Displaced air will contain water vapor and will be radioactively contaminated. Portable ventilation systems, which consist of a HEPA filter, heater, and fan, will be used to collect and filter the displaced air.</p>
(i) The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;	
(ii) The effectiveness and reliability of systems and structures to reduce or prevent emissions of dangerous constituents to the air;	
(iii) The operating characteristics of the unit;	
(iv) The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;	
(v) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;	
(vi) The potential for health risks caused by human exposure to waste constituents; and	

Table H2 WAC 173-303-680(2) through (4) Requirements

Requirement	Method of Compliance
(vii) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.	Portable ventilation systems used to support grouting of the hot cells, hot pipe trench, K3 duct trench, and A Cell airlock will discharge inside the 225B Building, which is an abated air space. The portable ventilation systems used to support grouting of the K3 filter pit will discharge outside, and abatement and monitoring controls will be implemented. This activity will be licensed separately if the existing site license cannot be used.
(3) Monitoring, analysis, inspection, response, reporting, and corrective action. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with subsection (2) of this section, <u>WAC 173-303-320</u> , <u>173-303-340(1)</u> , <u>173-303-390</u> , and <u>173-303-64620</u> as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.	The stabilized hot cells will be maintained in a manner that prevents threats to HHE and monitored through routine radiation surveillances, using radiation as an indication of contamination outside the stabilized Hot Cell A through Hot Cell F DWMU.
<u>WAC 173-303-320</u> Inspections	Inspections of the Hot Cell A through Hot Cell F DWMU are addressed in Section H5.2.
<u>WAC 173-303-340(1)</u>	WESF complies with annual reporting requirements through Hanford Facility Permit, Condition II.B.
<u>WAC 173-303-390</u> Facility Reporting	
1. Unmanifested Waste Reports	N/A – WESF Hot Cell A through Hot Cell F DWMU will not be receiving additional waste shipments during closure.
2. Annual Reports	WESF complies with annual reporting requirements through Hanford Facility Permit, Condition I.E.22.
3. Additional Reports	
a. Releases of dangerous waste, fires, and explosions	Reports regarding releases of dangerous waste, fires, and explosions are addressed in DOE/RL-94-02, <i>Hanford Emergency Response Plan</i> .
b. Interim status groundwater monitoring data	N/A – WESF Hot Cells A through F are not a land disposal unit or surface impoundment, and groundwater monitoring is not required.
c. Facility closures specified in <u>WAC 173-303-610(6)</u>	Closure certification is addressed in Section H5.14 of this closure plan.

Table H2 WAC 173-303-680(2) through (4) Requirements

Requirement	Method of Compliance
d. As otherwise required by <u>WAC 173-303-645</u> through <u>173-303-665</u> , <u>WAC 173-303-690</u> through <u>173-303-692</u> , and <u>WAC 173-303-400</u> .	There have not been any releases from the Hot Cell A through Hot Cell F DWMU that are subject to the corrective action requirements. Air emission standards are met through the WESF K3 ventilation system.
4. Recordkeeping	WESF maintains a facility operating record in accordance with Hanford Facility Permit, Condition II.I.
<u>WAC 173-303-64620</u> Corrective Action	There have not been any releases from the Hot Cell A through Hot Cell F DWMU that are subject to corrective action requirements.
(4) Post-closure care. A miscellaneous unit that is a disposal unit must be maintained in a manner that complied with subsection (2) of this section during the post-closure care period. In addition, if a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated during closure, then that unit must also meet the requirements of subsection (2) of this section during post-closure care. The post-closure plan under <u>WAC 173-303-610(8)</u> must specify the procedures that will be used to satisfy this requirement.	The Hot Cell A through Hot Cell F DWMU will be clean closed. No post-closure care is required.

H5 CLOSURE ACTIVITIES

The Hot Cell A through Hot Cell F DWMU does not store capsules and will not be used in future waste management activities at WESF. As a result, Hot Cells A through F will undergo closure to minimize the need for further maintenance and eliminate the potential for the release of dangerous constituents from the DWMU.

As described in Section H3.4 of this closure plan, the hot cells were used to encapsulate Cs-137 and Sr-90 that had been separated from plutonium production waste in B Plant. As a result, the hot cells became contaminated with a significant amount of Cs-137 and Sr-90, along with smaller amounts of dangerous constituents.

The K3 exhaust ventilation system controls the release of contamination from the hot cells. This aging system relies on HEPA filters that have exceeded their operational life and need to be replaced. However, replacement of the filters is impractical due to the high levels of radionuclide contamination.

A project has been initiated to address K3 ventilation system issues. Implementation of this project will include initial closure activities for the Hot Cell A through Hot Cell F DWMU, along with installation of a new ventilation system. Although the ventilation system is not part of the DWMU, it is discussed in this closure plan so the reader can fully understand the approach for initial closure activities of the DWMU.

The integrated approach to complete initial closure activities of the DWMU includes the following tasks:

- Replace the K3 exhaust ventilation system with a new system (K3N). The K3N system will ventilate the Hot Cell A through Hot Cell F DWMU during initial closure activities. The K3N system will also provide ventilation for Hot Cell G, which is one of the two DWMUs that will remain operational at WESF.
- Stabilize legacy contamination in the K3 exhaust ventilation system and in Hot Cells A through F. Stabilization will be accomplished by filling contaminated areas with grout.

Completion of this project will also support eventual removal of cesium and strontium capsules, which are currently in the pool cells at WESF, and subsequent transfer of the capsules to a newly constructed treatment, storage, and/or disposal (TSD) unit.

Significant modifications to hot cells will be performed to enable replacement of the aging ventilation system, including the introduction of grout. Modifications have been analyzed to ensure that the safety functions of the structures are not negatively impacted. These structural evaluations are documented in CHPRC-02270, *Structural Evaluation for Grouting the 225-B Building Hot Cells*; CHPRC-02420, *W-130 Project Building 225B South Wall K3N Duct Penetration Analysis*; and CHPRC-02531, *W-130 Project Structural Evaluation of Vertical Core Drill Through Hot Cell Divider Walls*.

Initial closure activities for the Hot Cell A through Hot Cell F DWMU consists of the following main tasks:

- Site preparation
- Unit modification and evaluation prior to stabilization
- Stabilization of contamination within WESF

Following completion of the initial Hot Cell A through Hot Cell F DWMU closure activities described, an extended closure period will begin prior to completion of final Hot Cell A through Hot Cell F DWMU closure activities. Final closure activities for the Hot Cell A through Hot Cell F DWMU will be completed concurrent with closure activities for the remaining two operating WESF DWMUs. Final clean closure activities for the Hot Cell A through Hot Cell F DWMU consist of the following main tasks:

- Demolition and removal of the Hot Cell A through Hot Cell F DWMU
- Management and disposal of the hazardous debris
- Visual verification of underlying soil
- Sampling and analysis to confirm clean closure

H5.1 Health and Safety Requirements

Closure will be performed in a manner to ensure the safety of personnel and the surrounding environment. Qualified personnel will perform any necessary closure activities in compliance with established safety and environmental procedures. Personnel will be equipped with appropriate personal protective equipment (PPE). Qualified personnel will be trained in applicable safety and environmental procedures and have appropriate training and experience in sampling activities. Field operations will be performed in accordance with applicable health and safety requirements.

The Permittees have instituted training or qualification programs to meet training requirements imposed by regulations, DOE orders, and national standards such as those published by the American National Standards Institute/American Society of Mechanical Engineers. For example, the environmental, safety, and health training program provides workers with the knowledge and skills necessary to execute assigned duties safely. The Hanford Facility RCRA Permit, Attachment 5, describes specific requirements for the Hanford Facility Personnel Training program. The Permittees will comply with the training matrix shown in Table H3, which provides training requirements for Hanford Facility personnel associated with closure activities for the Hot Cell A through Hot Cell F DWMU.

Project-specific safety training addressed explicitly to the project and day's activity will include training to provide the knowledge and skills needed for personnel to perform work safely and in accordance with quality assurance (QA) requirements.

Pre-job briefings will be performed to evaluate activities and associated hazards by considering the following factors:

- Objective of the activities
- Individual tasks to be performed
- Hazards associated with the planned tasks
- Environment in which the job will be performed
- Facility where the job will be performed
- Equipment and material required
- Safety protocols applicable to the job
- Training requirements for individuals assigned to perform the work
- Level of management control
- Emergency contacts

Training records are maintained for each employee in an electronic database. The Permittees' training organization maintains the training records system. A record of training, as required by Table H3, will be kept in the operating record until the Washington State Department of Ecology (Ecology) approves certification of final closure of the three WESF DWMUs.

Table H3. Training Matrix for Hot Cell A through Hot Cell F DWMU

Training Category ^a							
Permit Attachment 5 Training Category	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training			
WESF DWTP Implementing Plan	Orientation Program	Operations Program (Emergency Response – Contingency Plan Duties)	Emergency Coordinator	General Waste Management Duties	Awareness Program	Container Management	Miscellaneous Storage Unit Management
Job Title/Position							
Nonfacility Personnel	X						
Maintenance Crafts	X				X ^b		
Radiological Control Technician	X				X ^b		
Nuclear Chemical Operator	X	X ^b		X ^b	X ^b	X ^b	X ^b
Shift Operations Manager	X	X ^b	X ^b				
Environmental Compliance Officer	X			X ^b			
Waste Service Provider	X			X ^b		X ^b	

DWMU = dangerous waste management unit

DWTP = dangerous waste training plan

^a Refer to the WESF DWTP for a complete description of coursework in each training category.

^b Training received is commensurate with the duties performed. Individuals in this category who do not perform these duties are not required to receive this training.

H5.2 Records Review and Visual Inspections

As a miscellaneous unit permitted closely to a container storage area, the clean closure determination for Hot Cell A through Hot Cell F is partially based on review of the operational history and operating records, as detailed in this closure plan, to verify that all items (both debris and waste) remaining in the hot cells during stabilization and closure are identified. Based on these reviews, Hot Cells A through F is a candidate for clean closure under RCRA, and confirmation sampling will be performed. Certain documents (SD-WM-ER-014; SD-WM-ER-022; and HNF-8556, *Estimate of WESF Hot Cell Inventory*) were reviewed to identify activities performed to place Hot Cells A through F into standby/surveillance mode and identify inventory within the hot cells. Information provided in those documents was utilized to develop this closure plan. In addition to reviewing these documents, visual verification of Hot Cell F contents was performed. Contents and conditions in Hot Cells A through E cannot be visually verified due to the unavailability of lighting within the cells.

During the extended closure period for the Hot Cell A through Hot Cell F DWMU, inspections will continue to maintain the facility in a manner that prevents threats to HHE. Once initial closure activities have been completed and the extended closure period begins, annual inspections of the DWMU will be performed in accordance with Table H4. Annual inspections are deemed sufficient because any structural degradation of the DWMU, that could potentially cause a release of dangerous waste constituents to the environment, would occur slowly and can be identified at this inspection frequency.

After Hot Cells A through F have been filled with grout, the DWMUs internal monitoring equipment will be encased within the grout and will be inactive. Annual inspections identified in Table H4 will be performed visually, and no additional monitoring equipment will be used.

Penetration covers are utilized during closure activities to minimize contamination migration. Once the grout has cured, the penetration covers no longer serve a purpose; therefore, inspection is not necessary.

The DWMU is located inside a building and is not accessible for unknowing or unauthorized entry by persons or livestock. The building is protected by locked doors with posted warning signs. Vehicular access to roads leading to the DWMU area are through the Hanford Facility 24-hour controlled access points. The access points are posted with restrictive signage.

Table H4. WAC 173-303-320(2) Inspection Schedule for Hot Cell A through Hot Cell F

Requirement Description	Inspection Frequency	Inspection
Posted Warning Signs	Annually	Verify that signs are posted and legible.
Hot Cell A through Hot Cell F Exterior Surfaces and Surrounding Area	Annually	Check for structural damage to the building. Check outside the building for liquid accumulations or signs of releases of hazardous waste. Verify viewing window plates are sealed.

Inspection documentation must include, at a minimum, the date and time of inspection, observations, corrective actions (if any), and name/signature of inspection personnel. Inspection documentation must be maintained in the WESF facility operating record for a minimum of five years after Ecology clean closure acceptance. Corrective actions taken as a result of inspections must be remedied on a schedule that prevents hazards to the public health and environment.

Once the Hot Cell A through Hot Cell F DWMU has been demolished and removed, visual verification of the underlying soil will be performed to identify any staining or discolored soil, the presence of wet areas, or other signs of potential contamination.

The presence of volatile emissions is unlikely; however, the potential for volatile emissions will be evaluated upon removal of the Hot Cell A through Hot Cell F DWMU. Areas of concern of the underlying soil would be considered a candidate for focused sampling under the SAP.

H5.3 Site Preparation

Site preparation will consist of installation and startup of the new K3N system. Stabilization activities will be performed with the K3N system operational.

H5.4 Unit Modification Prior to Stabilization

Areas to be grouted include Hot Cells A through F, the Hot Cell A air lock, the underground K3 exhaust ventilation system ducting, the hot pipe trench and K3 ventilation duct trench underneath the hot cells, and the K3 filters and filter pit. All of these areas will be isolated from the portions of WESF that will remain operational. Isolation will ensure that grout and contamination do not spread outside of the areas to be grouted and will include the following activities:

- Isolate equipment that connects to the K3 exhaust system ducting.
- Isolate utility lines that remain connected to the hot cells. These utilities include air and electrical services.
- Install covers over and/or seal hot cell penetrations, such as the viewing windows, manipulator ports, and pass-throughs between Hot Cell F to Hot Cell G and from Hot Cell F to the service gallery. Oil will be drained from the viewing windows before the covers are installed.

A prerequisite activity to grouting hot cells is to pour a concrete block over the lead shielding that is against the north service gallery wall. Lead shielding is in place to cover a hot spot that resulted from migration of cesium from Hot Cell D/E through holes in the Hot Cell D/E cell floor liner. The liner was repaired in 1980. The concrete block will ensure that no grout escapes when grouting Hot Cell D/E.

Grout will be added to contaminated spaces through existing piping or penetrations wherever possible. Where this is not possible, core drilling will be performed to provide penetrations into the spaces for the addition of grout. Penetrations will need to be made through the K3 filter pit walls, into the K3 filter housings, through the Hot Cell A airlock ceiling, through the top of the K3 duct trench (through the hot cell divider walls above), and through the top of the hot pipe trench (through the hot cell divider wall and hot manipulator shop above). Figure H13 shows the location of core drills and other grout addition penetrations in the canyon that affect Hot Cells A through F.

Contamination control methods, such as glove-bags and portable filtered ventilators, will be used during core drilling to prevent the spread of contamination. A wet core drill with a vacuum attachment, water collection ring, and wastewater collection system will be used to minimize dust generated during concrete core drilling.

An engineering evaluation has been performed to demonstrate that the addition of grout to the hot cells will not affect the structural integrity of the building (CHPRC-02270).

H5.5 Stabilization

The primary function of stabilization is physical isolation of contamination, so no exposure pathways remain where humans or the environment could be adversely impacted.

H5.5.1 Grout Design

For this application, grout will not perform a structural function for seismic/structural calculation purposes, but it will have sufficient compressive strength to support applicable loads upon completion of grouting activities.

During development of the WESF grout design, documentation related to the U Plant grouting project was reviewed to identify any lessons learned that might be applicable to the WESF activity. Documents reviewed included DOE/RL-2010-127, *90 percent Remedial Design Report for Grouting 221-U Plant Canyon*, and D&D-35827, *Project Experience Report, Canyon Disposition Initiative (221-U Facility)*.

The grout used at WESF will be a flowable, nonaggregate void filling grout formulated to meet the following performance criteria:

- Maximum allowable centerline temperature of 71°C (160°F) during curing
- Minimum flow distance of 18 m (60 ft)
- Minimum allowable compressive strength of approximately 10,300,000 newton/m² (1,500 lb/in²) at 28 days
- Capable of entering and filling openings/voids with a minimum dimension of approximately 1.3 cm (0.5 in.)

A grout testing plan will be developed as part of the QA testing program to ensure that the grout used complies with project specifications. Engineering and laboratory scale testing will be performed to confirm that the grout formulation meets the performance criteria prior to the addition of grout to any areas within WESF. Field inspection and testing will be performed during the grouting operation.

The grout design process included the performance of several evaluations to determine how well the grout will perform under conditions expected at WESF.

Radiolysis occurs when radioactive materials are in the presence of water. Hydrogen gas is generated as a result of radiolysis and, if allowed to accumulate, can present a flammability/explosive hazard. Evaluation has determined that the potential for an accumulation of hydrogen gas of sufficient concentration and under conditions necessary to support combustion is very small.

Over long time periods, concrete structures may degrade as a result of sufficient exposure to ionizing radiation. A very conservative calculation has been performed that shows that the time frame necessary for the recognized cumulative exposure threshold associated with concrete degradation is greater than 110 years. A more realistic, yet still conservative, calculation shows that the time frame necessary to reach a radiation exposure of concern is in excess of 590 years (CHPRC-02499, *W-130 Project Calculation: Estimate of Impacts to Grout as a Result of Radiation Exposure*). Based on review of the grouting design and hot cells, there is not a concern that there will be any degradation of grout or the hot cells concrete structure due to radiation exposure.

Grout can also be affected by exposure to high temperature. The grout design limits temperatures due to heat of hydration to 160°F, which will not negatively affect the grout or structural concrete. Potential impacts to the grout as a result of heat of hydration and decay heat have been evaluated, and there are no deleterious effects (CHPRC-02429, *W-130 Project Calculation: Estimate of Concrete Temperature in WESF Hot Cells From Decay Heat*).

H5.5.2 Grout Delivery

Grout will be prepared offsite and trucked to WESF. The grout will be tested to verify performance before construction begins. Grout samples will be collected and tested during construction.

A grout pump will be placed on the west side of the truck port entrance. Water will be provided from a fire hydrant or building hose connection.

Hose will be routed from the grout pump to locations to be grouted using the following general routing:

- From the grout pump to the K3 filter pit (outside the 225B Building)
- From the grout pump, through the truck port, to the Hot Cell G air lock, and into the service gallery

- From the grout pump, into the truck port, up through the floor opening into the canyon, and along the canyon floor to access the hot cells and the Hot Cell A air lock. Grout will be added to the hot cells through existing penetrations (ventilation inlet ports).

The piping and hose will remain in place for each route only as long as grout placement in the stabilized areas is required.

A temporary washout pit will be set up near the grout pump and truck delivery location to contain rinsate from the delivery trucks and grout pump.

A construction trailer(s) will be located near WESF to provide support for grouting activities. Electric power will be required for the trailer(s) and supplemental lighting. If used, portable generators will be in service for less than 365 days and will not be permitted as stationary sources. The engine used to power the generator set will meet the existing reciprocating internal combustion engine standards (40 CFR, Part 61, "National Emission Standards for Hazardous Air Pollutants") for that engine size.

H5.5.3 Grout Placement

Grouting will begin inside the exhaust duct, downstream of the K3 filter pit, and inside the two HEPA filter units, to stop any contamination from escaping through the exhaust system during subsequent grouting.

The following general sequence is used for stabilization grouting of the Hot Cell A through Hot Cell F DWMU:

- K3 filter pit (not part of TSD)
- K3 duct (not part of TSD)
- Hot Cell A air lock (not part of TSD)
- Hot pipe trench (not part of TSD)
- K3 duct trench (not part of TSD)
- Hot cells

The sequence provided is a general sequence only. The hot cells will be partially filled to provide shielding for the core drilling, which will allow access to the K3 duct trench, and complete the hot pipe trench grout addition. The Hot Cell A air lock does not need to be completely grouted before hot cell grouting starts. The exact sequence will be determined during the final work planning process and documented in the work package that is used to perform the work.

To minimize cracking of the grout, the lift depth will be limited to approximately 0.9 m (3 ft). This limitation will also allow placement of the next lift the following day.

Grout will be distributed from the grout pump set up outside the truck port to the vicinity of the grout fill location. Valves will be used at the fill connections to enable quick shutoff of grout once the volume is filled.

As grout flows into placement locations, air will be displaced by the grout. Displaced air will contain water vapor and will be radioactively contaminated. Portable ventilation systems, which consist of a HEPA filter, heater, and fan, will be used to collect and filter the displaced air. Portable ventilation systems used to support grouting of the hot cells, hot pipe trench, K3 duct trench, and A Cell airlock will discharge inside the 225B Building, which is an abated air space. Portable ventilation systems used to support grouting of the K3 filter pit will discharge outside, and abatement and monitoring controls will be implemented. This activity will be licensed separately if the existing site license cannot be used.

Expected grout volume will be used as an initial indicator to determine when grouting is complete. Design of the grout addition system will include provisions for visual confirmation that the spaces being grouted are filled as much as possible.

H5.5.4 K3 Filter Pit and Filter Housings

K3 filter housings (Figure H14) are located in an underground vault that consists of several chambers. All chambers of the underground vault and filter housings will be filled with grout. Estimated grout volume is 132 m³ (173 yd³).

Core drills will be made into each chamber of the filter pit and the filter housings to allow placement of grout. Contamination control methods, such as the use of glovebags and portable ventilators, will be used to prevent the spread of contamination during drilling and grouting.

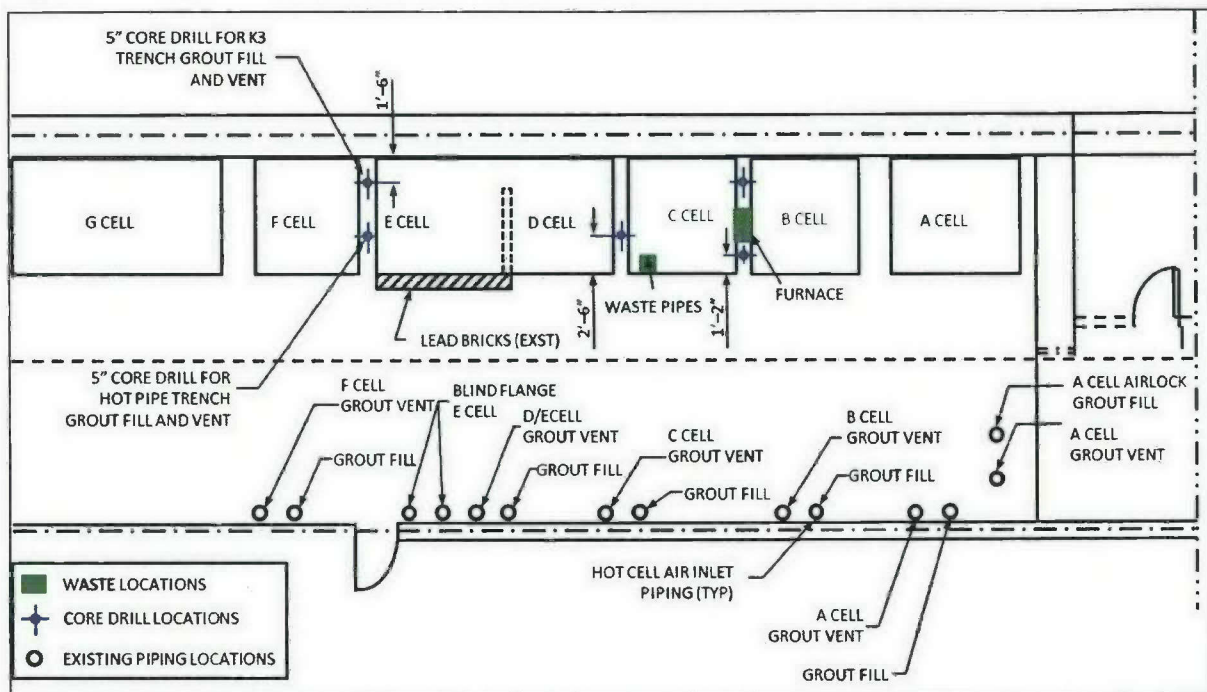


Figure H13 Core Drills and Grout Addition Locations in Canyon

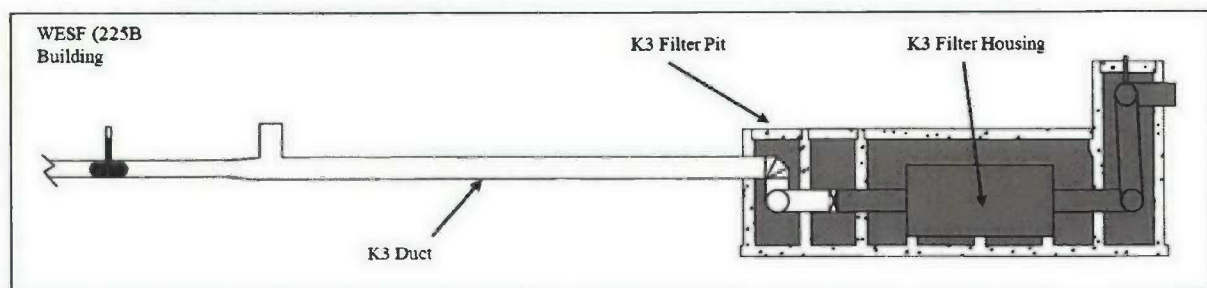


Figure H14. K3 Filter Pit and Duct

H5.5.5 K3 Duct and Trench

The K3 duct extends from the K3 filter pit to the 225B Building. It is located inside a trench and runs underneath the hot cells. Both the K3 duct and K3 duct trench will be filled with grout. The estimated grout volume is 11 m³ (14 yd³) for the duct and 13 m³ (17 yd³) for the K3 duct trench.

1 Grout will be added to the K3 duct through access points in the truck port and in Hot Cell G. Access to
2 the K3 duct trench will be via core drills through the divider walls between Hot Cells B and C and
3 between Hot Cells E and F. These divider walls are approximately 50 cm (20 in.) wide and
4 approximately 4.9 m (16 ft) deep. Figure H15 shows how core drills through the divider walls will be
5 performed. Grout will be added through these penetrations until the K3 duct trench is full.

6 **H5.5.6 Hot Pipe Trench**

7 The hot pipe trench runs underneath the hot cells next to the K3 duct trench. The entire hot pipe trench
8 will be filled with grout. Access to the hot pipe trench will be via core drills through the floor of the hot
9 manipulator shop and through the divider walls between Hot Cells B and C, between Hot Cells C and D,
10 and between Hot Cells E and F (see Section H5.4 for core drill locations).

11 Grout will first be added to the hot pipe trench through a penetration made in the floor of the hot
12 manipulator shop (not shown in Figure H13). Grout will then be added through the Hot Cell B and Hot
13 Cell C divider wall penetrations, and finally through the Hot Cell E and Hot Cell F divider wall
14 penetrations until the hot pipe trench is full. Penetration through the Hot Cell C and Hot Cell D divider
15 wall will be used for venting. The core drill locations were chosen to avoid drilling through obstructions,
16 such as the furnace between Hot Cells B and C.

17 Due to congested conditions in the hot pipe trench with piping and supports, grout pump discharge
18 pressure will be the indication of complete filling since volume calculations will be inaccurate.

19 The estimated grout volume for the hot pipe trench is 28 m³ (36 yd³).

20 **H5.5.7 Hot Cell A Air Lock**

21 The Hot Cell A air lock will be grouted to stabilize contamination within the air lock and to prevent the
22 Hot Cell A access door from opening when Hot Cell A is grouted. The air lock must receive at least one
23 lift of grout before Hot Cell A stabilization can proceed.

24 Grout will be added to the Hot Cell A air lock through ceiling penetrations made by core drilling through
25 the canyon floor (canyon is directly above the air lock). Estimated grout volume is 50 m³ (66 yd³).

26 **H5.5.8 Hot Cells**

27 Grout will be added to Hot Cells A through F to the underside of the cover blocks. The hot cells will be
28 filled and actively vented during the grouting process using existing ventilation inlet ports.

29 Each hot cell has a viewing window on the operating gallery side that must be protected to ensure that
30 there is no breach by liquid grout during the placement process. Protection of the windows is addressed in
31 Section H5.5.9.

32 Numerous penetrations through the hot cell walls into the operating gallery and service gallery must be
33 sealed to prevent leakage of contaminated grout. A combination of cover plates and mastic material will
34 be employed for this purpose. Pass-throughs from Hot Cell F to Hot Cell G and Hot Cell F to the service
35 gallery will be sealed from Hot Cell G and the service gallery sides to contain the grout.

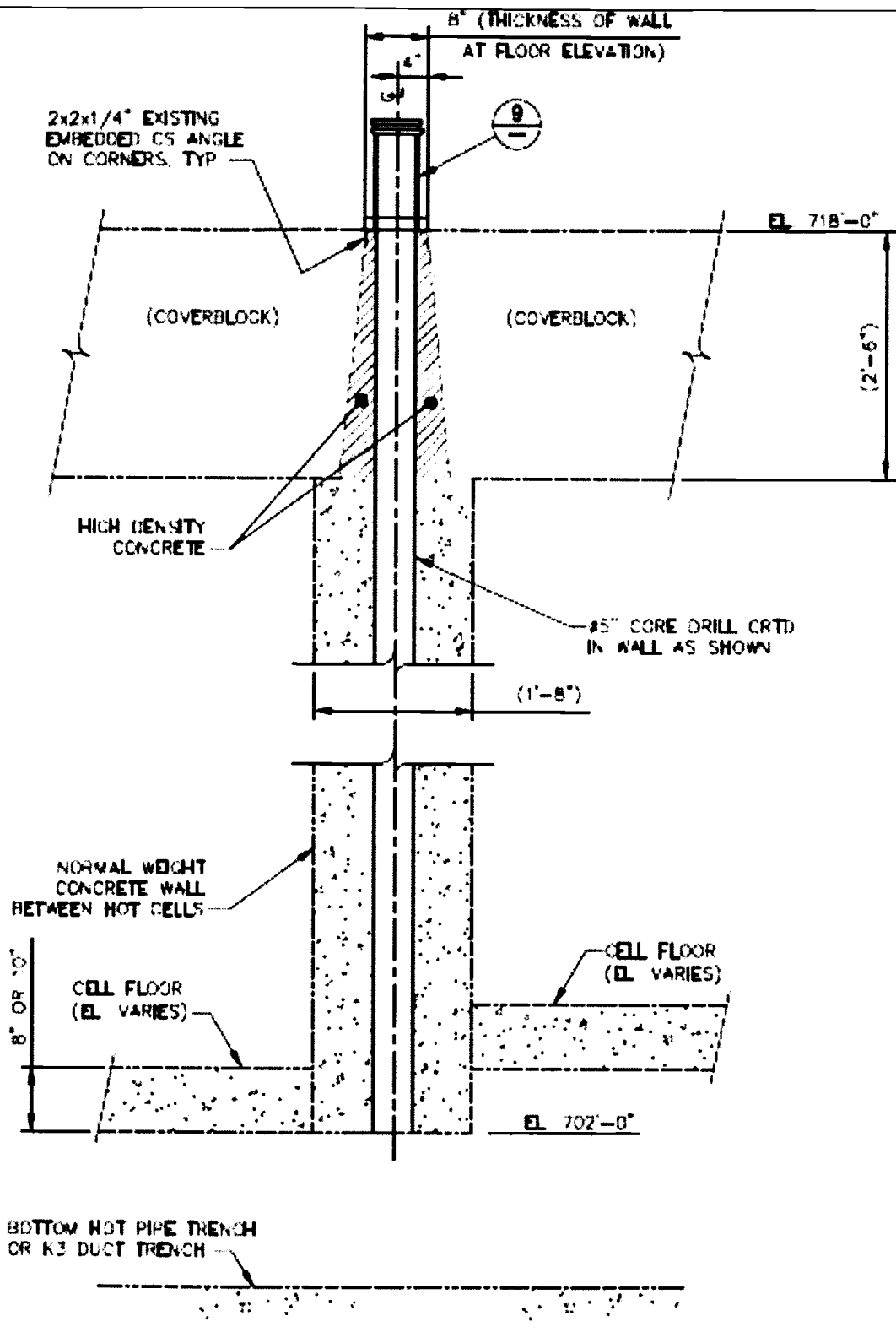


Figure H15. Performance of Core Drills through Divider Wall

Hot cell grouting will be performed in multiple lifts. Sequencing of hot cell stabilization will be finalized with the grouting contractor. Each cell could have a lift placed in turn, or one cell can be filled before moving on to the adjacent one. Because of the flowability of the grout and because no effort is made to seal the hot cells from each other, it is likely that all cells will fill together until the grout level is above the highest common penetration. Estimated grout volumes are listed in Table H5.

Table H5. Estimated Hot Cell Grout Volume

Hot Cell	Total Grout Volume (yd ³)
A	47
B	28
C	28
D and E	62
F	28

Hot cells contain the following tanks, piping, and other equipment:

- Process tanks within the hot cells are connected to the floors, walls, and/or connecting piping and are not expected to be buoyant. Tank drain and vent valves were left open during hot cell cleanout and the grout formula being used is thin, so grout is expected to enter and fill most of the tanks and other equipment left in the hot cells.
- HEPA filters in the ventilation exhaust and between Hot Cell A and the A Cell Hood are expected to fail, so grout will enter all of these spaces.
- Four trays of waste will remain in the furnace between Hot Cells B and C. The furnace has small penetrations, which will remain open during grouting and allow some grout to flow inside. However, macroencapsulation will be accomplished by grout surrounding and encapsulating the furnace. Although grout may not completely fill the furnace to encapsulate the trays directly, it will completely encapsulate the furnace containing the trays, so the statutory requirement of 42 USC 6924(m), "The Public Health and Welfare," "Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," will be met thorough substantial reduction of the migration potential of hazardous constituents from the waste.
- No effort will be made to seal pass-throughs between the hot cells, so grout should be forced into those spaces.
- Gaskets on the hot cell side of the window may or may not fail. If they fail, allowing grout to flow into the spaces around the window, between the window panes, then the seal installed on the operating gallery side of the window will contain the grout.
- Although not expected, items that are not attached to the floor or walls of the hot cells may become buoyant during grouting of the hot cells. These items included HEPA filters, open-top rectangular tanks in Hot Cell F, and miscellaneous loose items within the hot cells.

The approach to grout placement will be to add grout in lifts. The first lift of grout will flow around all fixed objects. This first lift will be allowed sufficient time to harden before placing the next lift. Any objects that float up with the grout will be bonded in the top surface, depending on displacement of the object. Tanks will have enough surface area in contact with the grout to develop a bond that will keep them in place when the next lift is placed. Hoses and HEPA filters will be bonded to the first lift because of their large surface area and light weight.

H5.5.9 Hot Cell Viewing Window Protection

Each hot cell has a viewing window consisting of multiple sections of glass (tempered and leaded) separated by inner sections of oil to provide operator shielding.

The total volume of oil between the panes of glass in each window is approximately 30 L (8 gal). The gap remaining after the oil is removed is approximately 0.64 cm (0.25 in.) between each pane. Removal of the oil is performed through the work package process, which includes the use of a waste planning process before work is performed. Once the oil is removed, it will be managed as identified in Section H3.4.6. Oil removal from the viewing window is performed using the following steps:

- Attach oil filling tubing to a plastic bottle.
- Open the oil inlet line to drain oil from the window into the preapproved container.

A steel plate will be attached to the outside of the shield wall in the operating gallery that covers the entire viewing window. It will extend far enough to use concrete anchors to hold it in place. A seal will be used between the plate and wall to ensure that contaminated grout will not breach the windows.

The grout lift heights inside each hot cell will be adjusted to ensure that the upper elevation of the grout lift occurs near the top of the window to reduce hydrostatic pressure on the window.

H5.5.10 Control of Contamination during Grouting

As the grout flows into placement locations, air, water vapor, and radiological contaminants may be released through the vent locations. Radiological contamination will be controlled by active ventilation with portable exhausters at specified locations. Active ventilation will allow air movement to be controlled throughout all phases of the project.

H5.6 Demolition of the Hot Cell A through Hot Cell F DWMU

Demolition of the Hot Cell A through Hot Cell F DWMU will take place concurrently with demolition of the remaining portions of WESF. The following primary activities are required to complete demolition of the Hot Cell A through Hot Cell F DWMU:

- Location of utilities
- Equipment mobilization
- Demolition and removal of Hot Cell A through Hot Cell F

H5.6.1 Location of Utilities

Prior to demolition, any in-use utilities will be located as well as the underground fire water line. The fire water line supplies water to the fire hydrant, which will be utilized as the water supply for dust suppression during demolition activities.

H5.6.2 Equipment Mobilization

Resources, equipment, and materials (e.g., support trailers, excavators, diamond saw cutters, front loaders, trailers, sand, water fog cannons, and boring machinery) necessary to perform demolition will be staged in designated laydown areas in proximity to WESF.

H5.6.3 Demolition and Removal of Hot Cell A through Hot Cell F

Demolition of the Hot Cell A through Hot Cell F DWMU will be accomplished utilizing cutting and sawing to create monoliths. Water may be used to control dust generated from demolition activities. The amount of water used will be minimized to prevent ponding and runoff. While unlikely, other controls such as portable ventilation filter units, HEPA filtered vacuum cleaners, greenhouses, and/or fogging agents may be used. Additional storm water run-on and run-off controls may be implemented, as needed.

If needed, crusting agents or fixatives will be applied to any disturbed portion of the contamination area, such as exposed soil from the removal of monoliths that will be inactive for more than 24 hours. Material to be disposed at the Environmental Restoration Disposal Facility (ERDF) will also comply with the moisture content and other applicable requirements of WCH-191, *Environmental Restoration Disposal*

1 *Facility Waste Acceptance Criteria.* Dust fixative is applied to appropriate portions of the demolition and
2 excavation site at the end of each shift, and if wind arises, to prevent the spread of contamination.

3 Demolition activities described in the following subsections presume that the waste will be disposed of at
4 ERDF, as discussed in Section H5.9.4.

5 **H5.6.3.1 Cutting and Sawing**

6 Demolition using cutting or diamond wire sawing will be used to create multiple monoliths. Grouting the
7 hot cells stabilizes contamination on the surfaces of the hot cells, waste boats and pipes, and exterior of
8 remaining equipment and debris. To avoid disturbance of the potential surface contamination on the hot
9 cell surfaces, diamond wire sawing will be performed through the walls between the cells, with the
10 exception of the wall between Hot Cells B and C, which contains the boats inside the furnace. Cuts will
11 be made to include the exterior walls of the hot cells. A general depiction of the specific cut locations is
12 identified in [Figure H16](#). Final cut locations will be determined, through the use of engineering drawings
13 and field walkdowns, before the start of demolition.

14 The exact locations of HEPA filters and other debris on the cell floors are not known. Monolith cuts are
15 designed to take advantage of wall structural integrity for building the exoskeleton and to ensure that
16 remaining tanks are cut, so they are no longer a closed vessel for disposal. Due to the location of TK-B-4
17 in the wall directly above the furnace, after the monolith containing TK-B-4 and the furnace has been
18 removed, a horizontal cut will be made into the tank so it is no longer a closed vessel; however, the
19 monolith will remain whole. The horizontal cut location is depicted in [Figure H16](#). Care will be taken to
20 avoid breaching the furnace below the tank. If a cut to create a monolith breaches HEPA filters or other
21 debris, the exposed surfaces of debris along the cut line of the monolith will be sealed in accordance
22 with [40 CFR Part 268.45](#), "Land Disposal Restrictions," "Treatment Standards for Hazardous Debris"
23 (Table 1, "Alternative Treatment Standards for Hazardous Debris").

24 Sealing is performed by the application of an approved sealing material such as epoxy, silicone, or
25 urethane compounds that must adhere tightly to the debris surface to avoid exposure of the surface to
26 potential leaching media. Sealants must be resistant to degradation by the debris and its contaminants.

27 During cutting and sawing activities, water is used to cool blades and wires. This water is collected using
28 a vacuum system and reused during the demolition. After cutting and sawing activities are complete, the
29 water is containerized, solidified, and managed as a newly generated waste stream (Section H5.9). Due to
30 the size of the monoliths and the softness of the grout, an exoskeleton may need to be fabricated to
31 support the structure of the monolith. The exoskeleton is made from steel plates bolted to the outside
32 surfaces of the monolith. Once the steel plates are bolted to the surfaces, steel beams are welded to the
33 plates. Depending on the weight of the monolith, it may be necessary to bore under the monolith and
34 install steel beams to support the structural integrity of the monolith from below. Once the exoskeleton is
35 in place, the monolith may be removed with a crane and lifted to the transportation trailer. The other
36 option for removal of the monolith is by using jacks to lift the monolith and then drive the trailer
37 underneath the monolith. Monoliths will then be removed and managed as hazardous debris
38 (Section H5.9.4).

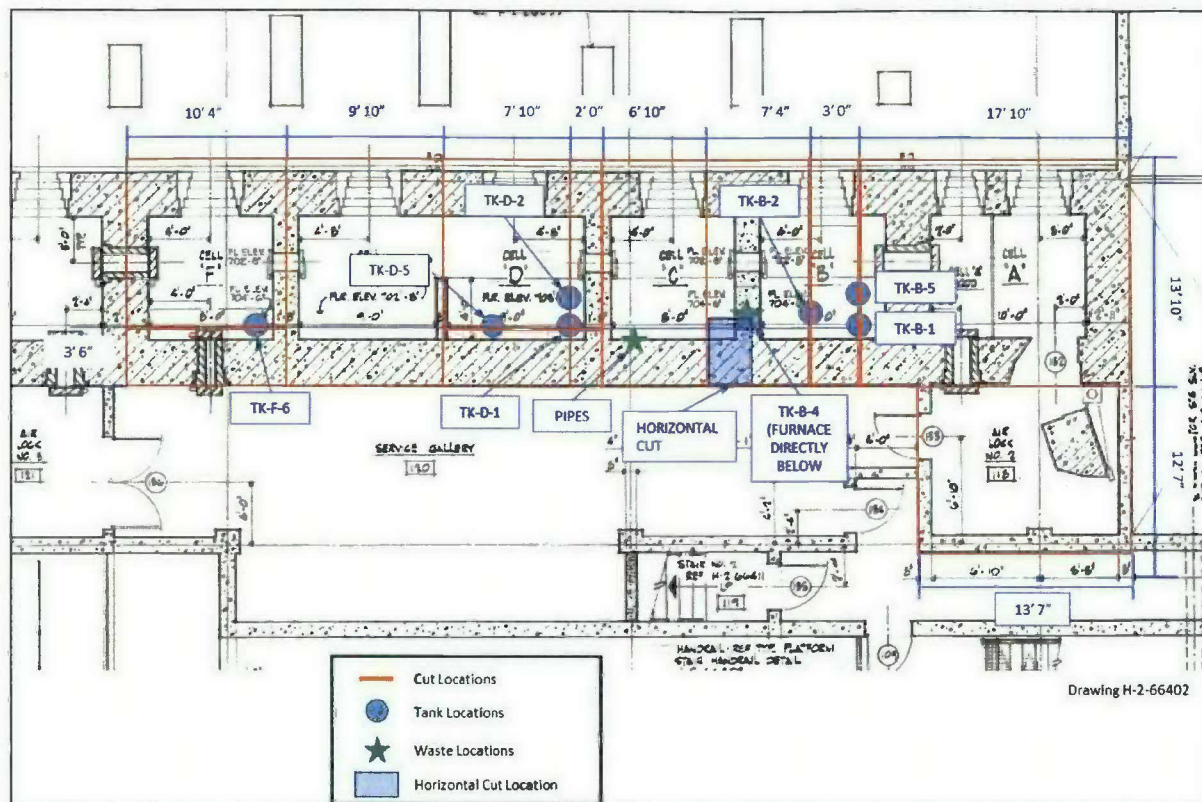


Figure H16. Monolith Cut Locations

H5.7 Removal of Wastes and Waste Residues

Hot Cells A through F contain materials and equipment used during packaging of the cesium and strontium capsules (see Section H3.4 for details of cell contents). In preparation for facility layup, a series of demineralized water flushes was performed in all of the in-cell jumpers and tanks. Chemical flushing was done in an effort to remove residual solids, and the tanks were again flushed with demineralized water.

The tank systems were flushed, removing all waste possible with normal means, with the intention of closing them and never reusing. During demolition of the Hot Cell A through Hot Cell F DWMU, locations of the monoliths have been placed to ensure that intact tanks, listed in Table H1, will be cut (and therefore no longer intact) and conservatively disposed of as hazardous debris. Cut locations for the tanks are shown in Figure H16.

Radiation hazards posed to personnel prevent the sampling and removal of cell contents; therefore, sampling will not be performed to quantify dangerous waste contamination. As a result, material and equipment remaining in the hot cells will be conservatively designated as hazardous debris.

Following facility layup, jumpers were removed from the tanks resulting in tank openings for grout filling.

The Hot Cell B furnace contains four trays with approximately 0.6 kg (1.3 lb) of strontium fluoride floor sweepings. Hot Cell C contains two threaded and capped pipes with approximately 1.2 kg (2.6 lb) of strontium fluoride floor sweepings. The pipes are located on the southwest corner of the cell on wall brackets above the bench floor.

DOE-RL has submitted a petition to Ecology for a site-specific variance from applicable land disposal restriction (LDR) treatment standards in accordance with 40 CFR 268.44(h)(2), "Variance from a

Treatment Standard,” for specific waste items in Hot Cells B and C at WESF. These waste items hold 0.6 kg (1.3 lb) and 1.2 kg (2.6 lb) of floor sweepings from past cleanup activities in the cells. The floor sweepings contain strontium fluoride and processing debris, including metal shavings, and other miscellaneous waste material produced during operations of the hot cells. Ordinarily, the treatment standard for these forms of waste is a specific type of stabilization called microencapsulation. Microencapsulation is the stabilization of the waste material itself through the addition of Portland cement or lime/pozzolanic material, which reduces the leachability of contaminants from the waste. Microencapsulation treatment of the waste would then be followed by sampling and analysis of the stabilized waste to determine that LDR treatment standards have been accomplished.

However, treatment by microencapsulation would require intrusive activities, increasing exposure to workers, generation of a significant amount of additional waste requiring treatment, and potential risk of environmental exposure. Radiological and physical characteristics of the waste items prevent them from undergoing final analytical testing to verify that LDR treatment standards have been achieved. Treatment and verification of treatment by the usual methods of microencapsulation would cause potential exposure to workers, provide potential for environmental exposure, and fail to demonstrate LDR treatment.

A variance from the required LDR treatment standards is being requested to allow stabilization via in-cell macroencapsulation during grouting of the hot cells. Macroencapsulation is the application of a surface coating material such as polymeric organics (e.g., resins and plastics) or inert inorganic materials (e.g., Portland cement) that would encase the entire waste items rather than treat the interior waste such as in microencapsulation, substantially reducing surface exposure to potential leaching of contaminants. Portland cement would be used to encase the entire waste items within the cell. Macroencapsulated waste would be left intact at the WESF facility during an initial closure period. By treating the waste via macroencapsulation in WESF cells, leachability of contaminants is reduced, radiological exposure to workers is minimized, and transportation to another facility is not required. The requested petition (15-AMRP-0070, “Petition for Site-Specific Variance from Land Disposal Treatment Standards”) outlines the justification and protectiveness of this treatment for waste items at the WESF hot cells.

During final facility removal, stabilized waste and waste residues associated with the Hot Cells A through Hot Cell F DWMU will be removed and managed as newly generated hazardous debris. Grouted Hot Cells A through F can be removed using standard demolition equipment, such as a diamond wire saw and excavators, cranes, and trailers in large monoliths, and transported for disposal in an approved disposal facility. Treatment standards for the newly generated hazardous debris will be the alternative debris standards for hazardous debris (40 CFR 268.45, Table 1) incorporated into WAC 173-303-140, “Land Disposal Restrictions,” by reference. Additional detail on the newly generated waste is covered in Section H5.9.

Cesium and strontium salts have been analyzed to estimate impurities. The analysis performed identified possible dangerous waste designations of barium (D005), cadmium (D006), chromium (D007), lead (D008), and silver (D011). These analytical data were used to characterize the salts and will be used to identify constituents of concern for the four trays and two pipes containing floor sweeping. Tables H6 through H8 provide analytical data for the cesium and strontium salts.

Impurities in the cesium salt are estimated as listed in PNL-5170, *A Review of Safety Issues that Pertain to the Use of WESF Cesium Chloride Capsules in an Irradiator*. Table H6 data were taken on cesium feed solution and salt analyzed for corrosion analysis. Concentrations are listed as weight percent solids. The silver concentration was not estimated but was added from process knowledge; therefore, it is not listed in the following tables.

Table H6. Impurities in Cesium Feed Solution and Salt

Element	Cesium Feed Solution (Wt%)	Salt Analysis (Wt%)
Aluminum (Al)	1.7	0.14
Boron (B)	--	0.14
Barium (Ba)	0.94	0.55
Calcium (Ca)	1.0	--
Cadmium (Cd)	--	0.02
Cobalt (Co)	--	0.1
Chromium (Cr)	0.27	1.4
Iron (Fe)	0.38	--
Potassium (K)	0.79	0.68
Magnesium (Mg)	0.25	0.68
Sodium (Na)	0.70	2.8
Nickel (Ni)	0.33	0.1
Lead (Pb)	1.4	0.14
Rubidium (Rb)	0.52	--
Silicon (Si)	7	0.21
Strontium (Sr)	0.18	0.02
Titanium (Ti)	--	0.02
Zinc (Zn)	--	0.03

1 Impurities in cesium salts wasted at the DOE Oak Ridge Site are listed in HNF-2928, *Certification That*
2 *CsCl Powder and Pellet Materials Meet WESF Acceptance Criteria*. Concentrations are listed
3 in Table H7 by weight percent.

4 Encapsulated cesium chloride salt contains dangerous waste chemical impurities from the fractionation
5 process consisting of lead, barium, chromium, cadmium, and silver. Barium is generated continuously as
6 a result of the cesium-137 decay chain.

7 Impurities in strontium salt are estimated in BNWL-1967, *The Containment of ⁹⁰SrF₂ at 800°C to 1100°C*
8 *Preliminary Results*. Table H8 data are estimates based on process flowsheet information; concentrations
9 are listed in weight percent.

10 The encapsulated strontium fluoride salt contains dangerous waste chemical impurities from the
11 fractionization process consisting of barium, lead, cadmium, chromium, and silver.

Table H7. Impurities in Cesium Salts Wasted at Oak Ridge

Element	Wt%
Aluminum (Al)	0.68
Boron (B)	5.17
Barium (Ba)	2.98
Calcium (Ca)	0.68
Copper (Cu)	0.02
Iron (Fe)	0.04
Potassium (K)	1.21
Magnesium (Mg)	0.04
Molybdenum (Mo)	0.009
Sodium (Na)	7.76
Nickel (Ni)	0.01
Silicon (Si)	2.59
Strontium (Sr)	0.01
Zinc (Zn)	0.03

1

Table H8. Impurities in Strontium Salt

Element	Probable Concentration (Wt%)
Aluminum (Al)	<0.5
Barium (Ba)	0.1-2.0
Calcium (Ca)	<0.1
Cadmium (Cd)	<0.2
Chromium (Cr)	<0.1
Copper (Cu)	<0.1
Iron (Fe)	<0.01
Hydrogen (H)	<0.1
Potassium (K)	0.05-0.5
Magnesium (Mg)	<0.1
Manganese (Mn)	<0.01
Nitrogen (N)	1-4
Sodium (Na)	<0.1
Nickel (Ni)	<0.05
Lead (Pb)	<0.2
R (as in Rare Earths)	<2.0
Silicon (Si)	<0.02

H5.8 Removal of Unit, Parts, Equipment, Piping, Containment Structure, and Other Ancillary Equipment

In general, equipment will not be removed from Hot Cells A through F. The hot cells contain tanks and equipment that were used during the encapsulation process (Table H1). Process and service piping is embedded in the concrete walls of each hot cell. Pipes connect the cells to each other, as well as to the hot pipe trench, transmitter rooms, AMU area, service gallery, operating gallery, manipulator repair shop, truck port, and Tank-100. Spare piping is provided between all areas and the hot cells. All tanks, equipment, and piping will remain in place.

Upon completion of the surveillance and maintenance mode in 1985, hot cell components not required for storing the capsules or managing the legacy contamination were shutdown. Shutdown involved equipment cleanout, equipment isolation or removal, jumper removal, nozzle blanking, cerium window refurbishment, and instrumentation deactivation.

Water sources to Hot Cells A through F have been isolated, and the manipulators have been removed from Hot Cell A through Hot Cell E. Manipulators will be removed from Hot Cell F prior to grouting. Remaining utility connections, including air piping and electrical connections, will be isolated from the hot cells prior to stabilization.

Section H5.4 provides further discussion of hot cell and K3 exhaust duct isolation activities that will be performed prior to stabilization.

H5.9 Identifying and Managing Waste Generated During Closure

Closure activities for WESF will result in the generation of three waste streams requiring management and disposal: excess grout generated during grouting activities, water collected from sawing and cutting, and hazardous debris resulting from demolition during final closure activities of the Hot Cell A through Hot Cell F DWMU.

H5.9.1 Excess Grout

Grout that does not meet specification requirements (Section H5.5.1), and grout remaining in a delivery truck when a particular grouting operation is completed, will most likely be generated during closure activities. This out-of-specification or excess grout (Section H5.5.1) is anticipated to be a nondangerous solid waste stream and will be managed and disposed at an approved disposal site as newly generated nondangerous waste.

H5.9.2 Grout Rinsate

A temporary washout pit will be set up near the grout pump and truck delivery location to contain rinsate from the delivery trucks and grout pump. The resulting grout rinsate wastewater stream is exempt per Ecology, 2012, *Categorical State Waste Discharge Permit Number ST0004511*, under exemption G12.F. The resulting rinsate wastewater is anticipated to be nondangerous.

H5.9.3 Water Collected from Sawing and Cutting

Water used to cool the blades and cutting wires will be collected using a vacuum system and reused throughout the cutting process. Once demolition activities are complete, the water will be containerized. The waste is anticipated to be nondangerous and is considered a newly generated solid waste stream. Until confirmation of the nondangerous waste designation, waste must be handled in accordance with all applicable requirements of WAC 173-303-170, "Requirements for Generators of Dangerous Waste," through WAC 173-303-230, "Special Conditions." The waste will be labeled, characterized in accordance with requirements in WAC 173-303-070, "Designation of Dangerous Waste," anticipated to be designated as nondangerous waste, stored, and transported to an appropriate disposal facility.

H5.9.4 Hazardous Debris

Hazardous debris generated from demolition will be packaged onsite at WESF and transported to ERDF. Hazardous debris includes, but is not limited to, the following types of wastes resulting from demolition of Hot Cells A through F:

- Concrete and associated debris
- Miscellaneous waste (e.g., rubber, glass, paper, PPE, cloth, plastic, and metal)
- Equipment and construction materials

The preferred management of hazardous debris resulting from demolition of the hot cells is in bulk form. Bulk waste will include monoliths and other debris. Monoliths will be loaded onto trailers for transportation to ERDF. Other miscellaneous bulk debris will be placed into bulk containers, such as roll-off boxes, for ERDF disposal. These transport trailers and bulk containers will be stored/staged in a suitable area in proximity to the hot cell area or may be staged for up to 90 days in another suitable location. Waste must be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230, labeled, characterized in accordance with WAC 173-303-070 requirements, stored, and transported to an appropriate disposal facility. Bulk containers will be covered when waste is not being added or removed. Lightweight material (e.g., plastic and paper) will be bagged, if appropriate, prior to placement in the bulk container, to eliminate the potential for materials blowing out of the bulk container or truck.

H5.10 Identifying and Managing Contaminated Environmental Media

If contaminated environmental media (soil) is identified as a result of clean closure verification sampling activities (i.e., samples indicate contamination above clean closure standards), the nature and extent of contamination will be evaluated. Soil surrounding the sampling node location, which indicated contamination above clean closure levels, will be removed horizontally to the next adjacent node locations where contamination was not identified and to a depth of approximately 3 ft. (0.6 m). Contaminated soil will be removed using equipment capable of removing the quantity of material required to complete removal and clean close the DWMU. Following removal of contaminated soil, additional confirmatory sampling efforts will be conducted in accordance with the approved closure plan SAP (Section H5.12.1), at the same node location(s) where contamination was identified, to demonstrate clean closure levels.

If contaminated soil removal is required from the DWMU, it will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5). Contaminated soil generated during the closure period must be properly disposed. The contaminated soil must be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230, containerized, labeled, characterized in accordance with WAC 173-303-070 requirements, designated as a dangerous or nondangerous waste, stored, and transported to an appropriate disposal facility. It will be treated (if necessary) to meet LDRs in 40 CFR 268, incorporated into WAC 173-303-140(2)(a) by reference, then ultimately disposed. While undergoing final activities to clean close the WESF Operating Unit Group, the Permittees will provide a more detailed evaluation of how contaminated environmental media will be managed in accordance with Ecology clean closure guidance.

H5.11 Confirming Clean Closure

Final clean closure activities for the Hot Cell A through Hot Cell F DWMU will be performed in conjunction with removal of the entire WESF facility. Final clean closure will be accomplished through demolition practices (Section H5.6), to remove Hot Cells A through F, along with the remainder of WESF. Demolition of the remaining two DWMUs within WESF is to be detailed in the closure plans for those two DWMUs.

Once the removal of WESF is complete, confirmation sampling of soil underlying the Hot Cell A through Hot Cell F DWMU will be conducted in accordance with the SAP, detailed in Section H5.12, to confirm that soil unrestricted use cleanup standards (MTCA [WAC 173-340] Method B) have been achieved. If sample results indicate contamination above clean closure levels, contaminated soil will be removed and managed in accordance with Section H5.10. Once analytical results confirm clean closure levels of the target analytes, clean closure certification will be prepared in accordance with Section H5.14.

H5.11.1 Hot Cell A through Hot Cell F Closure Process

Following completion of the initial closure activities described in this plan, the Hot Cell A through Hot Cell F DWMU will be in an extended closure period until final closure activities can take place (Section H6). Final closure activities for the Hot Cell A through Hot Cell F DWMU will be coordinated with final closure of the pool cell and Hot Cell G DWMUs. Final closure activities will occur after the cesium and strontium capsules have been removed from WESF.

When final closure activities for the Hot Cells A through Hot Cell F DWMU are ready to start, mobilization will begin to remove the grouted hot cells (Section H5.6.2). Disassembly of the hot cells is planned and will be performed with the following considerations:

- Hot cells will be cut into monoliths small enough to be safely transported using available means.
- Demolition of the hot cells is planned to avoid cutting through the Hot Cell B/Hot Cell C waste storage locations.
- Contamination control methods will be employed to avoid the spread of radiological contamination or mixed wastes to the environment.

A list of drawings showing the hot cell configuration will be maintained in the operating record to assist in identifying appropriate cut locations.

H5.12 Sampling and Analysis Plan and Constituents to be Analyzed

The SAP summarizes the sampling design used and associated assumptions based on the knowledge of the Hot Cell A through Hot Cell F DWMU. The sampling design includes input parameters that will be used to determine the number and location of samples once demolition of WESF is complete.

Sampling of the underlying soil for Hot Cells A through F will be conducted to confirm that soil unrestricted use cleanup standards (MTCA [WAC 173-340] Method B) have been achieved. If sample results indicate contamination above clean closure levels, the contaminated soil will be removed and managed in accordance with Section H5.10.

Due to the legacy radiological contamination within the hot cells, personnel entrance into the hot cells is not feasible. Therefore, sampling of the remaining equipment, classified as hazardous debris, and the four trays and two pipes, to demonstrate compliance with the concentration based treatment standard in 40 CFR 268.40, "Applicability of Treatment Standards," will not be performed under the closure activities outlined in this closure plan. The treatability variance (15-AMRP-0070) establishes the alternative performance based treatment standard of macroencapsulation, as identified in 40 CFR 268.45.

H5.12.1 Sampling and Analysis Plan

Sampling and analysis of the Hot Cell A through Hot Cell F DWMU underlying soil will be conducted to confirm that clean closure levels have been achieved. All sampling and analysis will be performed in accordance with the sampling and quality standards established in this closure SAP. The closure SAP details sampling and analysis procedures in accordance with SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update IV-B*; ASTM International (formerly American Society for Testing and Materials) *Annual Book of ASTM Standards*; and applicable U.S. Environmental Protection Agency (EPA) and Ecology guidance. Sampling and analysis activities will meet applicable requirements of SW-846, ASTM International standards, EPA approved methods, and

DOE/RL-96-68, *Hanford Analytical Services Quality Assurance Requirements Document (HASQARD)*, at the time of closure. This SAP was also developed using Ecology Publication 94-111, *Guidance for Clean Closure of Dangerous Waste Units and Facilities*, Section 7.0, "Sampling and Analysis for Clean Closure," and EPA/240/R-02/005, *Guidance on Choosing a Sampling Design for Environmental Data Collection* (EPA QA/G-5S).

H5.12.2 Target Analytes

Analysis of cesium/strontium salts identified possible dangerous waste designations of barium (D005), cadmium (D006), chromium (D007), lead (D008), and silver (D011). Section H5.7 provides analytical data of cesium/strontium salts. Table H9 details the target analytes and associated waste codes.

Table H9. Target Analyte List

Target Analyte (Waste Code)	Chemical Abstracts Service Number
Barium (D005)	7440-39-3
Cadmium (D006)	7440-43-9
Chromium (Hexavalent) (D007)	18540-29-9
Lead (D008)	7439-92-1
Silver (D011)	7440-22-4

H5.12.3 Hot Cell A through Hot Cell F SAP Schedule

Confirmation closure sampling and analysis will be performed in accordance with the closure plan schedule in Section H6.

H5.12.4 Hot Cell A through Hot Cell F Project Management

The following subsections address project management and ensure that the project has defined goals, that the participants understand the goals and the approaches used, and that the planned outputs are appropriately documented. Project management roles and responsibilities discussed in this section apply to the major activities covered under the SAP.

The Permittee is responsible for planning, coordinating, sampling, preparing, packaging, and shipping samples to the laboratory. The project organization (regarding sampling and characterization) is described in the following subsections and shown graphically in Figure H17. The Project Manager maintains a list of individuals or organizations as points of contact for each functional element in Figure H17.

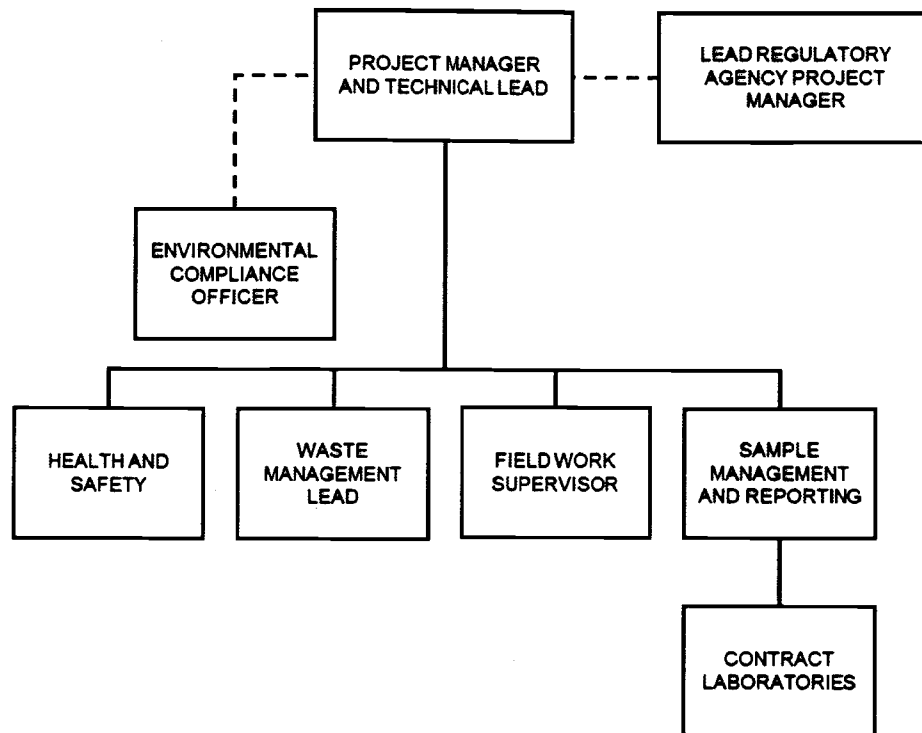


Figure H17. Hot Cell A through Hot Cell F Sampling and Analysis Plan Project Organization

The project has several key positions, including the following:

- **Lead Regulatory Agency Project Manager:** Ecology has assigned Project Managers responsible for closure oversight.
- **Project Manager:** The Project Manager provides oversight for activities and coordinates with DOE-RL, EPA, Ecology, and contract management. The Project Manager (or designee) for the Hot Cell A through Hot Cell F DWMU closure sampling is responsible for direct management of sampling documents and requirements, field activities, and subcontracted tasks. The Project Manager is responsible for ensuring that project personnel are working to the current version of the SAP. The Project Manager works closely with QA, Health and Safety, and the Field Work Supervisor (FWS) to integrate these and other lead disciplines in planning and implementing the work scope. The Project Manager also coordinates with DOE-RL and the primary contractor management on all sampling activities. The Project Manager supports DOE-RL in coordinating sampling activities with the regulators.
- **Environmental Compliance and Quality Assurance:** The Environmental Compliance Officer provides technical oversight, direction, and acceptance of project and subcontracted environmental work and develops appropriate mitigation measures with a goal of minimizing adverse environmental impacts.
- **Health and Safety:** The Health and Safety organization is responsible for coordinating industrial safety and health support within the project, as carried out through health and safety plans, job hazard analyses, and other pertinent safety documents required by federal regulation or by internal primary contractor work requirements.
- **Sample Management and Reporting:** The Permittee's sampling organization coordinates field sampling as well as laboratory analytical work, ensuring that laboratories conform to Hanford Facility internal laboratory QA requirements (or their equivalent), as approved by

DOE-RL, EPA, and Ecology. The sampling organization receives the analytical data from the laboratories, performs data entry into the Hanford Environmental Information System (HEIS) database, and arranges for data validation. The sampling organization is responsible for informing the Project Manager of any issues reported by the analytical laboratory.

- **Contract Laboratories:** The contract laboratories analyze samples in accordance with established procedures and provide necessary sample reports and explanation of results in support of data validation.
- **Waste Management:** The Waste Management organization communicates policies and protocols and ensures project compliance for storage, transportation, disposal, and waste tracking.
- **Field Work Supervisor:** The FWS is responsible for planning and coordinating field sampling resources. The FWS ensures that samplers are appropriately trained and available. Additional related responsibilities include ensuring that the sampling design is understood and can be performed as specified.

H5.12.5 Sampling Design

The primary purpose of sampling the underlying soil of the Hot Cell A through Hot Cell F DWMU is to determine if analytical data values exceed MTCA (WAC 173-340) Method B clean closure performance standards.

This SAP utilized Ecology Publication 94-111, Section 7.0, "*Sampling and Analysis for Clean Closure*," to determine the type of sampling design that will be utilized to demonstrate clean closure. When designing the sampling plan, both focused and area wide (grid) sampling methods were considered. Ecology Publication 94-111, Section 7.2.1, identifies area wide sampling as appropriate when the spatial distribution of contamination at or from the closure unit is uncertain. Ecology Publication 94-111, Section 7.3, "*Sampling to Determine or Confirm Clean Closure*," identifies the area wide sampling approach as generally appropriate to determine or confirm that clean closure levels are achieved. Focused sampling, as identified in Section 7.2.2 of Ecology Publication 94-111, is selective sampling of areas where contamination is expected or releases have been documented. Based on information provided in Section H5.4 for contamination in Hot Cells D and E, judgmental (focused) sampling of the soil will take place in the soil underlying those cells. Drawings in the operating record will be used to identify the location of underlying focused sampling. The remainder of the Hot Cell A through Hot Cell F DWMU underlying soil will include the area wide sampling approach. Both area wide and focused sampling are further defined in the following paragraphs.

Area-Wide (Grid) Sampling. Samples are collected at regularly spaced intervals over space or time. An initial location or time is chosen at random, and the remaining sampling locations are defined so that locations are at regular intervals over an area (grid). Grid sampling is used to search for hot spots and infer means, percentiles, or other parameters. It is useful for estimating spatial patterns or trends over time. This design provides a practical method for designating sample locations and ensures uniform coverage of a site, unit, or process.

Judgmental (Focused) Sampling. Selection of sampling units (i.e., the number and location and/or timing of collecting samples) is based on knowledge of the feature or condition under investigation and professional judgment. Focused sampling is distinguished from probability based sampling in that inferences are based on professional judgment, not statistical scientific theory. Therefore, conclusions about the target population are limited and depend entirely on the validity and accuracy of professional judgment. Probabilistic statements about parameters are not possible.

Once WESF has been removed, the remaining area will be measured, and the dimensions will be documented. Using measurements for the underlying soil area, the quantity and location of area wide samples will be determined utilizing the Visual Sample Plan (VSP) software. VSP is a tool, used throughout Washington State and nationally, that statistically determines the quantity of samples required

1 to accept or reject the null hypothesis. Parameters specific to the Hot Cell A through Hot Cell F DWMU
2 will be used as input to VSP for purposes of developing the sampling plan for this closure plan.

3 Both parametric and nonparametric equations rely on assumptions about the data population. Typically,
4 however, nonparametric equations require fewer assumptions and allow for more uncertainty about the
5 distribution of data. Alternatively, if the parametric assumptions are valid, the required number of
6 samples is usually less than if a nonparametric equation was used. For Hot Cells A through F, data
7 assumptions are largely based on information obtained from a grouping of similar waste sites. Parameters
8 from the 200-MG-1 waste sites were approved by Ecology in the SAP (DOE/RL-2009-60, *Sampling and*
9 *Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites*), evaluated, deemed appropriate, and
10 utilized as input parameters for Hot Cells A through F. VSP parameter inputs, and the basis for those
11 inputs, are detailed in Table H10.

12 The decision rule for demonstrating compliance with the MTCA (WAC 173-340) Method B clean closure
13 level has three parts:

- 14 • The upper 95 percent confidence limit on the true data mean must be less than the MTCA B clean
15 closure level.
- 16 • No sample concentration can be more than twice the cleanup level.
- 17 • Less than 10 percent of the samples can exceed the cleanup level.

18 For the purpose of utilizing VSP software, the null hypothesis will be that the site is considered
19 contaminated until proven clean, and it will be tested by comparing a site mean to a fixed threshold.
20 However, in addition to ensuring the site mean does not exceed the MTCA B clean closure performance
21 standards, data will be evaluated to ensure that less than 10 percent of the individual values exceed
22 MTCA (WAC 173-340) Method B clean closure performance standards and that no values are more than
23 twice the cleanup level.

24 Area-wide sample locations will be determined using the area-wide grid with a random start sampling
25 method run in VSP. Statistical analysis of systematically collected data are valid if a random start to the
26 grid is used. The first node location will be chosen at random by VSP, and subsequent sample locations
27 will be assigned by VSP using a grid sampling layout. The dimensions of the sample area (area under
28 Hot Cell A through Hot Cell F DWMU once removed or if combined, under the three WESF DWMUs)
29 will be entered into VSP to determine the locations of samples. The triangular grid sampling layout will
30 provide an even distribution of sample locations over the Hot Cell A through Hot Cell F DWMU. The
31 samples will be taken from the node locations indicated by VSP and will be assigned sample location
32 identifications and sample numbers using HEIS.

33 **H5.12.6 Sampling Methods and Handling**

34 A grab sample matrix will consist of soil collected in EPA Level 1 precleaned sampling containers
35 meeting the specifications in EPA 540/R-93/051, *Specifications and Guidance for Contaminant-Free*
36 *Sample Containers*, taken at a depth of 0 to 15.24 cm (0 to 6 in.) below ground surface. For the purpose
37 of this SAP, ground surface is defined as the exposed surface layer once the WESF structure has been
38 removed. Subsurface sampling was evaluated however, there have been no documented releases of free
39 liquid waste to the underlying soil so subsurface sampling was not deemed necessary.

Table H10. Visual Sample Plan Parameter Inputs

Parameter	Value	Basis
Primary Objective of the Sampling Design	Compare a site mean or median to a fixed threshold	Reject the null hypothesis.
Type of Sampling Design	Nonparametric	Data are not assumed to be normally distributed.
Working Null Hypothesis	The mean value at the site exceeds the threshold (MTCA B closure performance standards)	The null hypothesis assumes that the site is dirty requiring the sampling and analysis to demonstrate through statistical analysis that the site is clean.
Area Wide Grid Sampling Pattern	Triangular (assumed)	A triangular pattern will most likely provide an even distribution of sample locations over the Hot Cell A through Hot Cell F DWMU.
Standard Deviation (S)	0.45	This is the assumed standard deviation value relative to a unit action level for the sampling area. The value of 0.45 is conservative, based on consideration of past verification sampling. MARSSIM suggests 0.30 as a starting point; however, 0.45 has been selected to be more conservative. (Number of samples calculated increases with higher standard deviation values relative to a unit action level.)
Delta (Δ)	0.40	This is the width of the gray region. It is a user defined value relative to a unit action level. The value of 0.40 balances unnecessary remediation cost with sampling cost.
Alpha (α)	5%	This is the acceptable error of deciding a dirty site is clean when the true mean is equal to the action level. It is a maximum error rate since dirty sites with a true mean above the action level will be easier to detect. A value of 5% was chosen as a practical balance between health risks and sampling cost.
Beta (β)	20%	This is the acceptable error of deciding a clean site is dirty when the true mean is at the lower bound of the gray region. A value of 20% was chosen during the data quality objectives process as a practical balance between unnecessary remediation cost and sampling cost.
MARSSIM Sampling Overage	20%	MARSSIM suggests that the number of samples should be increased by at least 20% to account for missing or unusable data and uncertainty in the calculated value of n .

Reference: EPA 402-R-97-016, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*.

Once the soil is sampled, the sampled media will be screened to remove material larger than approximately 2 mm (0.08 in.) in diameter. Removal of material larger than approximately 2 mm (0.08 in.) in diameter will allow for a larger surface area to volume ratio and be more likely to identify any potential contamination in the sample and will be in compliance with WAC 173-340-740(7)(a), "Unrestricted Land Use Soil Cleanup Standards." Grab samples will be collected into containers at the chosen node sample locations. To ensure sample and data usability, sampling will be performed in accordance with established sampling practices, procedures, and requirements pertaining to sample collection, collection equipment, and sample handling. Soil sampling includes the following activities:

- Review of sampling request documentation
- Sample container and equipment preparation
- Field walkdown of sample area (includes marking sample locations)
- Sample collection and labeling
- Sample packaging, transporting, and shipping

Sample container, preservation, and holding time requirements are specified in Table H11 for soil samples. These requirements are in accordance with the analytical method specified. The final container type and volumes will be identified on the Sampling Authorization Form (SAF) and chain-of-custody form.

Table H11. Preservation, Container, and Holding Time Requirements for Soil Samples					
Method	Analysis/Analytes	Preservation Requirement	Holding Time	Bottle Type	Minimum Sample Size
EPA 6010	Metals by ICP-OES	Cool $\leq 6^{\circ}\text{C}$	180 days	G/P	20 g
EPA 7196	Chromium (Hexavalent)	Cool $\leq 6^{\circ}\text{C}$	30 days prior to extraction; 24 hours after extraction	G/P	20 g
Note: For the four-digit EPA methods, see SW-846, <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update V</i> .					
EPA	= U.S. Environmental Protection Agency	ICP	= inductively coupled plasma	OES	= optical emission spectrometry
G	= glass	P	= plastic		

To prevent potential contamination of the samples, decontaminated equipment will be used for each sampling activity.

EPA Level 1 precleaned sample containers will be used for samples collected for chemical analysis. Container sizes may vary depending on laboratory-specific volumes/requirements for meeting analytical detection limits.

The sample location, depth, and corresponding HEIS numbers will be documented in the sampler's field logbook. A custody seal (e.g., evidence tape) will be affixed to each sample container and/or sample collection package in such a way as to indicate potential tampering.

Each sample container will be labeled with the following information on firmly affixed, water resistant labels:

- SAF and form number
- HEIS number
- Sample collection date and time

- 1 • Sampler identification
- 2 • Analysis required
- 3 • Preservation method (if applicable)

4 Sample records must include the following information:

- 5 • Analysis required
- 6 • Sample location
- 7 • Matrix (e.g., water or soil)

8 Sample custody will be maintained in accordance with existing Hanford Facility protocols to ensure
9 maintenance of sample integrity throughout the analytical process. Chain-of-custody protocols will be
10 followed throughout sample collection, transfer, analysis, and disposal to ensure that sample integrity
11 is maintained.

12 All waste (including unexpected waste) generated by sampling activities will be containerized, labeled,
13 characterized, designated as a dangerous or non-dangerous waste, stored, and transported offsite where it
14 will be treated (if necessary) to meet the LDRs in 40 CFR 268, incorporated into WAC 173-303-140(2)(a)
15 by reference, then ultimately disposed of in an approved waste disposal facility in accordance
16 with WAC 173-303-610(5).

17 **H5.12.7 Analytical Methods**

18 All analyses and testing will be performed consistent with this closure plan, laboratory analytical
19 procedures, and HASQARD (DOE/RL-96-68). Accreditation of environmental laboratories ensures a lab
20 is capable of providing accurate and defensible analytical data. The selected laboratory must be
21 accredited by Ecology for the parameters and methods used. The approved laboratory must ensure that
22 data satisfy all the project specific data acceptance criteria in this SAP. If a target analyte is detected at or
23 above the clean closure level but less than the practical quantitation limit of the analytical method,
24 Ecology will be notified and alternatives will be discussed to demonstrate clean closure levels.

25 Analytical methods and performance requirements associated with the target analytes are outlined
26 in Table H12.

27 **H5.12.8 Quality Control**

28 Quality control (QC) procedures must be followed in the field and laboratory to ensure that reliable data
29 are obtained. Field QC samples will be collected to evaluate the potential for cross-contamination and
30 provide information pertinent to field sampling variability. Field QC sampling will include:

- 31 • Collection of full trip blank
- 32 • Field transfer blank
- 33 • Equipment rinsate blank
- 34 • Field duplicate
- 35 • Field split samples

36 Laboratory QC samples estimate the precision and bias of the analytical data. Field and laboratory QC
37 samples are summarized in Table H13.

38 A data quality assessment (DQA) will be performed utilizing the guidance in EPA/600/R-96/084,
39 *Guidance for Data Quality Assessment: Practical Methods for Data Analysis* (EPA QA/G-9), and
40 implementing the specific requirements in Section H5.12.9 through Section H5.12.11.

41 Data verification, data validation, and DQA will include both primary samples and QC samples.

1 **H5.12.9 Data Verification**

2 Analytical results will be received from the laboratory, loaded into a database (e.g., HEIS), and verified.
3 Verification includes, but is not limited to, the following activities:

- 4 • Amount of data requested matches the amount of data received (number of samples for requested
5 methods of analytes).
- 6 • Procedures/methods are used.
- 7 • Documentation/deliverables are complete.
- 8 • Hard copy and electronic versions of the data are identical.
- 9 • Data seem reasonable based on analytical methodologies.

10 **H5.12.10 Data Validation**

11 Data validation is performed by a third party. The laboratory supplies contract laboratory program (CLP)
12 equivalent analytical data packages intended to support data validation by the third party. The laboratory
13 submits data packages that are supported by quality control test results and raw data.

14 Controls are in place to preserve the data sent to the validators and allow only additions to be made, not
15 changes to the raw data.

16 The format and requirements for data validation activities are based upon the most current version of
17 USEPA-540-R-08-01, *National Functional Guidelines for Superfund Organic Methods Data Review*
18 (OSWER 9240.1-48), and, USEPA-540-R-10-011, *National Functional Guidelines for Inorganic*
19 *Superfund Data Review* (OSWER 9240.1-51). As defined by the validation guidelines, 5 percent of the
20 results will undergo Level C validation.

21 In accordance with Table H10, at least 80 percent of the sample results must be acceptable (data not
22 rejected during the data validation process).

23 **H5.12.11 Verification of VSP Input Parameters**

24 Analytical data will be entered back into VSP software. If all the analytical data for a particular analyte is
25 nondetect, verification of VSP input parameters will not be required for that analyte. VSP software uses
26 the analytical data to determine if the user input parameters were estimated appropriately. Once
27 analytical data are entered into VSP, the software will calculate the true standard deviation and if the null
28 hypothesis can be rejected. If the calculated standard deviation is smaller than the estimated user input
29 standard deviation, no additional sampling will be required. If the calculated standard deviation is larger
30 than the estimated standard deviation, additional sampling may be required. Comparison of the maximum
31 data value for each analyte to the clean closure standards will ensure all individual analytes are below the
32 action levels. Verification of the null hypothesis through VSP will determine if the mean value of the site
33 analytical data supports rejection of the null hypothesis (Section H4.1).

34 **H5.12.12 Documents and Records**

35 The Project Manager is responsible for ensuring that the current version of the SAP is being used and
36 providing any updates to field personnel. The current version of the SAP is maintained by Ecology.
37 Changes to the SAP affecting the data will be submitted as a permit modification in accordance
38 with WAC 173-303-610(3)(b) by the permittees to Ecology.

Table H12. Soil Analytical Performance Requirements

Chemical Abstracts Service Number	Analyte ^a	Analytical Method	Closure Performance Standard (mg/kg)		Practical Quantitation Limit (mg/kg)	Accuracy Req't (% Recovery) ^c	Precision Req't (RPD) ^c
			Carcinogen	Noncarcinogen			
7440-39-3	Barium	SW-846 Method 6010	--	1.60E+04	2.00E+00	±30	≤30
7440-43-9	Cadmium	SW-846 Method 6010	--	8.00E+01	5.00E-01	±30	≤30
18540-29-9	Chromium (Hexavalent)	SW-846 Method 7196	--	2.40E+02	1.00E+00	±30	≤30
7439-92-1	Lead ^b	SW-846 Method 6010	--	2.50E+02	5.00E+00	±30	≤30
7440-22-4	Silver	SW-846 Method 6010	--	4.00E+02	1.00E+00	±30	≤30
<p>a. Unless otherwise noted, closure performance standards are the numeric cleanup levels calculated using unrestricted use exposure assumptions according to MTCA (WAC 173-340) Method B (unrestricted use standards). Where both carcinogen and noncarcinogen performance standards are available, the most conservative value will be used.</p> <p>b. Closure performance standards are the numeric cleanup levels calculated using unrestricted use exposure assumptions according to MTCA (WAC 173-340) Method A (unrestricted use standards). MTCA Method A values were used when MTCA Method B values were not available.</p> <p>c. Accuracy criteria for associated batch matrix spike percent recoveries. Evaluation based on statistical control of laboratory control samples is also performed. Precision criteria for batch laboratory replicate matrix spike analyses or replicate sample analyses.</p>							
CAS = chemical abstract service			Req't = requirement				
CFC = chlorinated fluorocarbon			WAC = Washington Administrative Code				
MTCA = Model Toxics Control Act							

Table H13. Project Quality Control Sampling Summary		
Quality Control Sample Type	Frequency	Characteristics Evaluated
Field Quality Control		
Trip Blanks	One per 20 samples per media sampled One per cooler for VOCs	Contamination from containers or transportation
Equipment Rinsate Blanks	If only disposable equipment is used, then an equipment blank is not required Otherwise, one per 20 samples per analytical method per media sampled, or one per day ^a	Adequacy of sampling equipment decontamination and contamination from non-dedicated equipment
Field Duplicates	One per batch ^g , 20 samples maximum of each media sampled (soil samples)	Precision, including sampling and analytical variability
Field Split Samples	When needed, the minimum is one per analytical method, per media sampled, for analyses performed where detection limit and precision and accuracy criteria have been defined in the Performance Requirements tables ^h	Precision, including sampling, analytical, and interlaboratory
Laboratory Quality Control		
Method Blanks	1 per batch ^g	Laboratory contamination
Lab Duplicates	^b	Laboratory reproducibility and precision
Matrix Spikes	^b	Matrix effect/laboratory accuracy
Matrix Spike Duplicates	^b	Laboratory reproducibility, accuracy, and precision
Surrogates	^b	Recovery/yield
Tracers	^b	Recovery/yield
Laboratory Control Samples	1 per batch ^g	Evaluate laboratory accuracy
Performance Evaluation Programs ^c	Annual	Evaluate laboratory accuracy
Double-Blind Standards	Quarterly ^d	Evaluate laboratory accuracy
Audit/Assessment	Annually ^e or every 3 years ^f	Evaluate overall laboratory performance and operations

Table H13. Project Quality Control Sampling Summary

Quality Control Sample Type	Frequency	Characteristics Evaluated
<p>a. Whenever a new type of nondedicated equipment is used, an equipment blank shall be collected every time sampling occurs until it can be shown that less frequent collection of equipment blanks is adequate to monitor the decontamination procedure for the nondedicated equipment.</p> <p>b. As defined in the laboratory contract or quality assurance plan and/or analysis procedures.</p> <p>c. Nationally recognized program, such as DOE Mixed Analyte Performance Evaluation Program or Environmental Resource Associates.</p> <p>d. Soil matrix double-blind standards are submitted by request of Analytical Services.</p> <p>e. DOE Quality Systems for Analytical Services requires annual audit of commercial laboratories.</p> <p>f. DOE/RL-96-68, <i>Hanford Analytical Services Quality Assurance Requirements Document</i> (HASQARD), does not define a frequency for assessment of onsite laboratories. Three year evaluated supplier list requirement is typically applied.</p> <p>g. Batching across projects is allowing for similar matrices.</p> <p>h. Field split samples are generally used for interlaboratory comparison as periodic checks in large sample sets or when a particular method or laboratory has been producing unexpected results. Field splits are not required for small, discrete sample sets undergoing routing analyses using methods for which splits have been submitted as part of larger sample sets.</p> <p>DOE = U.S. Department of Energy</p>		

Logbooks are required for field activities. A logbook must be identified with a unique project name and number. The individual(s) responsible for logbooks will be identified in the front of the logbook, and only authorized persons may make entries in logbooks. Logbooks will be signed by the field manager, supervisor, cognizant scientist/engineer, or other responsible individual. Logbooks will be permanently bound, waterproof, and ruled with sequentially numbered pages. Pages will not be removed from logbooks for any reason. Entries will be made in indelible ink. Corrections will be made by marking through the erroneous data with a single line, entering the correct data, and initialing and dating the changes.

The Project Manager is responsible for ensuring that a project file is properly maintained. The project file will contain the records or references to their storage locations. The following items will be included in the project file:

- Field logbooks or operational records
- Data forms
- Global positioning system data
- Chain-of-custody forms
- Sample receipt records
- Inspection or assessment reports and corrective action reports
- Interim progress reports
- Final reports
- Laboratory data packages
- Verification and validation reports

The laboratory is responsible for maintaining, and having available upon request, the following items:

- Analytical logbooks
- Raw data and QC sample records
- Standard reference material and/or proficiency test sample data
- Instrument calibration information

Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrievability of stored records. Records generated during closure will be maintained in the facility operating record for a minimum of 5 years after the clean closure certification has been accepted by Ecology.

H5.12.13 Sampling and Analysis Requirements to Address Removal of Contaminated Soil

In the event that sample results based on the MTCA (WAC 173-340) Method B three-part test (Section H5.12.5) indicate contamination above clean closure levels, the contaminated soil will be removed in accordance with Section H5.10. Following removal of contaminated soil, additional samples will be taken at the same grid location as identified by VSP. Additional focused sampling may be added in areas where contamination is identified (Section H5.12.5). Additional focused samples will be documented, as required in Section H5.12.12, and provided with the closure certification upon request by Ecology. These samples will be analyzed in accordance with the methods specified in Table H12, with accompanying QC samples as discussed in Section H5.12.8.

H5.12.14 Revisions to the Sampling and Analysis Plan and Constituents to Be Analyzed

If changes to the SAP are necessary due to unexpected events during closure that will affect sampling, a revision to this SAP will be submitted no later than 30 days after the unexpected event as a permit modification as required in WAC 173-303-610(3)(b)(iii) and WAC 173-303-830, "Permit Changes."

H5.13 Role of the Independent, Qualified, Registered Professional Engineer

An independent, qualified, registered professional engineer (IQRPE) will be retained to provide certification of the clean closure activities described in this closure plan, as required by WAC 173-303-610(6). The engineer will be responsible for reviewing completed field activities and documents associated with these initial closure activities. At a minimum, field activities and documents reviewed for certification of these closure plan activities would include the following:

- Review of the final design and grout testing plan
- Review of project documentation created during initial closure activities
- Review of documentation or inspection of the stabilized Hot Cells A through F
- Review of the grout testing report
- Observe and/or review demolition activities
- Observe and/or review hazardous waste disposal documentation
- Review sampling procedures and results
- Observe and/or review sampling activities
- Observe and/or review contaminated environmental media removal (as applicable)
- Verify that locations of samples are as specified in the SAP

The engineer will record observations and reviews in a written report that will be retained in the operating record. The resulting report will be used to support the clean closure certification of the Hot Cell A through Hot Cell F DWMU. Final clean closure certification will be conducted after closure activities are completed for the Hot Cell A through Hot Cell F DWMU and in coordination with closure certification of the Pool Cells and Hot Cell G DWMUs.

H5.14 Certification of Clean Closure

In accordance with WAC 173-303-610(6), within 60 days of completion of the final closure activities for the Hot Cell A through Hot Cell F DWMU, certification that closure activities have been completed in

accordance with the specifications in the approved closure plan will be submitted to Ecology by registered mail. The certification will be signed by the owner or operator and signed and stamped by an IQRPE.

Upon request by Ecology, the following information will be submitted to support closure certification:

- All field notes and photographs related to closure activities.
- Description of any minor deviations from the approved closure plan and justification for these deviations.
- Documentation of the final disposition of all dangerous wastes and dangerous waste residues (if applicable), including contaminated environmental media.
- Verification of hot cell isolation activities.
- Verification that grouting of Hot Cells A through F occurred as planned in the described in work documents.
- Verification of demolition.
- All laboratory and/or field data, including sampling procedures, sampling locations, QA/QC samples, and chain-of-custody procedures for all samples and measurements, including samples and measurements taken to determine or confirm clean closure.
- Summary report that identifies and describes the data reviewed by the IQRPE and tabulates the analytical results of samples taken to determine and confirm clean closure.
- Description of what the DWMU area looks like at completion of closure, including a description of the former unit after closure.
- Additional data, as required, by final clean closure of the Pool Cells and Hot Cell G DWMU closure plans.

The final clean closure activity for the Hot Cell A through Hot Cell F DWMU will be accomplished through removal of the DWMU, which will be addressed in the closure plan for the other two operating DWMUs. The Hot Cells A through Hot Cell F DWMU clean closure certification will be provided in conjunction with clean closure certification of the Pool Cells and Hot Cell G DWMU and the entire WESF OUG.

H5.15 Conditions that Will Be Achieved When Closure is Complete

Upon completion of the initial and final closure activities outlined within this closure plan, the Hot Cell A through Hot Cell F DWMU will be isolated and stabilized with grout, demolished, removed, and disposed of at ERDF.

Final clean closure conditions will be demonstrated in conjunction with the other two operating DWMU closures.

H6 CLOSURE SCHEDULE AND TIME FRAME

Final clean closure activities will take place in conjunction with final closure for the WESF Operating Unit Group. Stabilization via grout of Hot Cells A through F is a necessary step to prevent threats to HHE and support final closure of the WESF Operating Unit Group.

The Hanford Facility has an ongoing need to store cesium and strontium capsules safely and compliantly until a disposal alternative is available. While efforts are underway to implement an alternative method, it is anticipated to be a number of years before the capsules can be safely transferred from WESF to an alternative storage.

Continued storage of WESF capsules requires the Pool Cells and Hot Cell G DWMUs to remain operational until alternative storage capability is available.

Waste Encapsulation and Storage Facility Hot Cells A Through F

Continued capsule storage will necessitate an extension to the 180 days to complete final clean closure activities for the Hot Cell A through Hot Cell F DWMU required in WAC 173-303-610(4)(b). This extension is being requested in accordance with WAC 173-303-610(4)(b)(i).

Hot Cells A through F contain a significant amount of legacy radioactive contamination. Stabilization of this contamination with grout will eliminate the potential for a release of this contamination while the cesium and strontium capsules are stored in the WESF pool cells. Additionally, stabilization of the legacy contamination will eliminate the potential for a release of dangerous waste constituents to the environment or to workers when the capsules are transferred out of WESF.

Approval of this closure plan will grant the Hanford Facility an extended closure period for performance of final clean closure activities, in accordance with WAC 173-303-610(4)(b), and a separate extension request will not be filed.

During this extended closure period, the Hanford Facility will comply with all applicable requirements of the permit. Additionally, the stabilized hot cells will be maintained in a manner that prevents threats to HHE and monitored through routine radiation surveillances, using radiation as an indication of contamination outside the stabilized Hot Cell A through Hot Cell F DWMU.

Closure activities and extended closure period expected durations are outlined in the closure activities schedule for the Hot Cell A through Hot Cell F (Table H14).

Table H14. Waste Encapsulation and Stabilization Facility Hot Cell A through Hot Cell F Closure Activities Schedule		
Closure Activity Description		Expected Duration
Primary Activity	Secondary Activity	Duration
Preclosure Preparation Activities		
<p>Prepare WESF</p> <ul style="list-style-type: none">Isolating equipment that connects to the K3 exhaust system ductingIsolating utility lines that remain connected to the hot cells. These utilities include air and electrical services	Isolate equipment that connects the K3 exhaust system ducting	N/A
	Isolate utility lines that remain connected to the hot cells, including air and electrical services	
	Install covers over/seal viewing windows, manipulator ports, and pass-throughs (drain window oil prior to cover installation)	
	Pour concrete block over Hot Cell D/E hot spot in service gallery	
Closure Activities		
Grout preparation	Core Drilling into DWMU	5 months
Perform grout stabilization	Grout K3 Filter Pit	6 months
	Grout K3 Duct and Trench	
	Grout Hot Pipe Trench	
	Grout Hot Cell A through Hot Cell F	
	Grout Hot Cell A Air Lock	

Table H14. Waste Encapsulation and Stabilization Facility Hot Cell A through Hot Cell F Closure Activities Schedule		
Closure Activity Description		Expected Duration
Submit to Ecology a status report of the Hot Cell A through Hot Cell F stabilization project	N/A	1 month after stabilization complete
Extended Closure Activities		
Extended closure period to coincide with clean closure of the Pool Cells and Hot Cell G DWMU activities	Continued surveillances and inspections	To be determined
Demolition of the Hot Cell A through Hot Cell F DWMU	Equipment mobilization	10 days
	Demolition and removal of waste generated	6 months
Sampling and analysis of underlying soil (includes data verification and data validation)	N/A	4 months
Closure Activities Complete		
Submit final clean closure certification	N/A	60 days after final clean closure activities complete
N/A = not applicable		

- 1 **H7 COST OF CLOSURE**
- 2 A detailed written estimate outlining updated projections of anticipated closure costs for the Hanford
- 3 Facility TSD units having final status is not required per Permit Condition II.H.
- 4

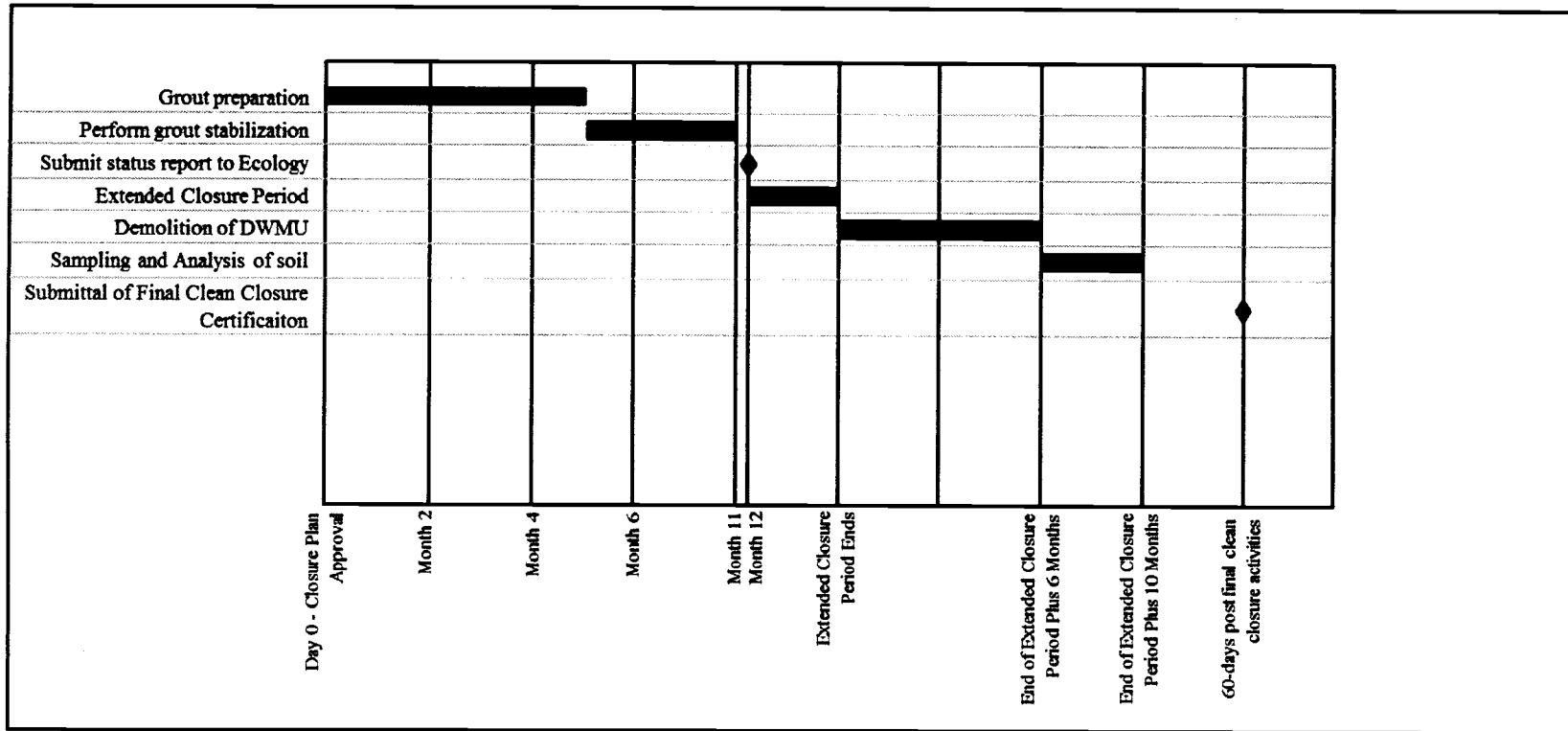


Figure H18. Waste Encapsulation and Stabilization Facility Hot Cell A through Hot Cell F Closure Plan Schedule

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39 303-400, "Interim Status Facility Standards."
40 303-610, "Closure and Post-Closure."
41 303-630, "Use and Management of Containers."

- 1 303-670, "Incinerators."
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DEPARTMENT OF
ECOLOGY
State of Washington

Response to Comments

**Proposed Permit Modification: 8C.2016.2D
- Changes to Part V of the Hanford Site-wide
Permit, Waste Encapsulation and Storage
Facility (WESF)**

March 14 – April 27, 2016

Summary of a public comment period and responses to comments

June 2016
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If you need this document in a format for the visually impaired, call the Nuclear Waste Program at 509-372-7950. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Response to Comments

**Proposed Permit Modification: 8C.2016.2D - Changes
to Part V of the Hanford Site-wide Permit, Waste
Encapsulation and Storage Facility (WESF)**

March 14 – April 27, 2016

Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354

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INTRODUCTION

The Washington State Department of Ecology's Nuclear Waste Program manages dangerous waste within the state by writing permits to regulate its treatment, storage, and disposal.

When a new permit or a significant modification to an existing permit is proposed, Ecology holds a public comment period to allow the public to review the change and provide formal feedback. (See Washington Administrative Code [WAC] 173-303-830 for types of permit changes.)

This Response to Comments addresses public comments received during a comment period held March 14, 2016, through April 27, 2016. The comment period supported a permit modification for the Hanford Waste Encapsulation and Storage Facility (WESF) that was proposed by the United States Department of Energy and CH2M Hill Plateau Remediation Company (permittees).

The purpose of this Response to Comments is to:

- *Describe and document public involvement actions.*
- *List and respond to all significant comments received during the WESF Hot Cell A through F public comment period.*

This Response to Comments is prepared for:

Comment period:	8C.2016.2D – Changes to Part V of the Hanford Site-wide Permit, Waste Encapsulation and Storage Facility (WESF), March 14 – April 27, 2016
Permit:	<i>Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part V, Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F</i>
Permittee(s)	U.S. Department of Energy Richland Operations CH2M HILL Plateau Remediation Company
Original issuance date:	September 27, 1994

For more information related to the Hanford Site and nuclear waste in Washington, please visit our website: www.ecy.wa.gov/programs/nwp.

REASONS FOR MODIFYING THE PERMIT

The proposed changes are Class 3 permit modifications to the Hanford Facility Dangerous Waste Permit, which regulates the storage, treatment, and disposal of Hanford's dangerous chemical and mixed chemical and radioactive waste.

This modification will move one Dangerous Waste Management Unit (DWMU) (Hot Cell A through F) within the WESF Operating Unit Group (OUG) 14 from Part III, Operating Unit Group of the Hanford Permit to Part V, Closure Unit Group 6, of the Hanford Permit.

Large amounts of legacy contamination throughout some hot cells and the ventilation system require the stabilization of the contamination, as well as upgrades to the ventilation system. The proposed changes are necessary to support replacement of the K3 ventilation exhaust system at WESF, which is permitted under the Hanford Air Operating Permit. The current filters are beyond their design life and are deteriorating. Therefore, a new system is being installed to ensure continued safe operations at WESF.

To replace the K3 ventilation system, the permittee must stabilize WESF hot cell contamination left over from prior waste processing activities by filling the cells with grout. The stabilization effort requires:

- A revision to the WESF Part A Application, which details facility information.
- Submittal of a closure plan to detail this interim step to closure at WESF. The closure plan will address Hot Cells A through F, which are no longer operational.

Two changes were made to the permit in response to the comments received during the public comment period. Clarifying text was added to the Part A Form and two sentences were removed from the Closure Plan. See details of the changes made in Ecology's responses to Comment #3 and Comment #4 found on page 9 below.

Land Disposal Restriction (LDR) Treatment Variance for WESF Hot Cells B & C

In addition to the proposed permit modifications, the permittees submitted to Ecology a request for a site-specific treatability variance from applicable LDR treatment standards for specific waste items in Hot Cells B and C. These waste containers hold a small amount of floor sweepings containing strontium fluoride, processing debris and other wastes produced during the last steps of cleanup and shutdown of operations.

Ordinarily, this type of waste would be treated by mixing the waste with a stabilizing agent, followed by sampling and analysis to confirm that LDR treatment standards have been met. However, these containers of waste are highly radioactive, with half-lives of about 30 years for cesium-137 and 29 years for strontium-90. Meeting LDR treatment standards requires intrusive activities and handling of this waste, increasing risk of exposure to workers and the environment and generation of additional mixed waste. In addition, the high radiological nature of the waste containers interferes with laboratory analyses needed to confirm treatment was successful.

The variance will allow stabilization by an alternative treatment method of macroencapsulation of these waste containers. This method uses grout to surround the waste, which protects human health and the environment by reducing the leachability of contaminants and minimizing waste generation and potential radiological exposure to workers. The requested treatability variance detailed the justification and protectiveness of this alternative.

The treatability variance request was submitted in January 2015. Ecology has approved the request in accordance with WAC 173-303-014, and it is referenced in the closure plan that was submitted as part of this permit modification.

PUBLIC INVOLVEMENT ACTIONS

Ecology encouraged public comment on the Part A and Closure Plan during a 45-day public comment period held March 14, 2016, through April 27, 2016.

The following actions were taken to notify and involve the public:

- Sent a public notice announcing the comment period to about 1900 subscribers to the Hanford mailing list.
- Placed an advertisement announcing the comment period in the Tri-City Herald on March 13, 2016.
- Sent a notice announcing the start of the comment period to the Hanford-Info email list, which had about 1500 subscribers.

The Hanford information repositories located in Richland, Spokane, and Seattle, Washington and Portland, Oregon received the following documents for public review:

- Public notice
- Transmittal letter
- Fact Sheet
- WESF Part A
- WESF Hot Cell A through F Closure Plan
- Treatability Variance Request

The following public notices for this comment period are in Appendix A of this document:

1. Focus Sheet
2. Advertisement in the *Tri-City Herald*
3. Notice sent to the Hanford-Info email list

LIST OF COMMENTERS

Commenter Identification:

The table below lists the names of organizations or individuals who submitted a comment on the WESF Hot Cells A through F Permit modification during the March 14, 2016, through April 27, 2016, public comment period. The last column lists the page number where you can find Ecology's response to the comments.

Commenter	Organization	Comment Number	Page Number
Mike Conlan	Citizen	1	5
Carl Holder	Citizen	2	5
Moses Jaraysi	CH2M HILL Plateau Remediation Company (CHPRC) Co-Permittee	3	6
U.S. Department of Energy Richland Operations Office (RL)	Federal Government	4	10

RESPONSE TO COMMENTS

Description of Comments:

Ecology accepted comments on the Closing Unit Group 6, WESF Hot Cells A through F from March 14, 2016, through April 27, 2016. This section provides a summary of comments received during the public comment period and our responses, as required by Revised Code Washington (RCW) 34.05.325(6)(a)(iii). All comments are listed individually and each is addressed separately. Ecology's responses directly follow each comment in italic font. Verbatim copies of all written comments are attached in Appendix B.

Comment #1 from Mike Conlan, Citizen, March 12, 2016

USDOE:

- 1) Remove all nuclear waste,
- 2) Do not allow anymore nuclear waste into the facility,
- 3) Replace all the single storage tanks,
- 4) Stop all the nuclear leakage entering the Columbia River.

Ecology Response to Public Comment #1:

Ecology is working to ensure that long-term storage, treatment, and disposal of the waste is protective of human health and the environment. The proposed permit changes are not to allow new waste, but to better manage the waste already at Hanford.

Single-shell tanks are not included within the scope of this comment period. Ecology does agree the single-shell tanks pose a threat. We believe a better approach to addressing it is to remove the waste from the single-shell tanks and put it in the compliant double-shell tanks to prepare for eventual treatment in the Waste Treatment Plant, now being built.

The closure of WESF Hot Cells A-F will not impact groundwater or surface water. The hot cells will be removed and remaining soil will be sampled to ensure that there is no remaining contamination above regulatory limits which may impact groundwater.

Comment #2, from Carl Holder, Citizen, March 14, 2016

The capsules of Cesium and Strontium have high value.

- The Cesium is highly valuable as an excellent source of gamma radiation.
- The Strontium capsules are also valuable for sources of beta radiation and daughter isotopes.

Gamma radiation is very useful as for medical sterilization, phytosanitary needs, etc.

This Strontium resource has many uses in nuclear medicine and contains valuable daughter isotopes.

The proposed expensive upgrade to ventilate a building that is pending decommission sounds counterproductive during these difficult budgetary times.

A broader plan would include an analysis of the opportunities to transition the Cesium and Strontium capsules, now substantially decayed, to beneficial use.

Ecology Response to Public Comment #2:

We agree that the Cesium and Strontium capsules must be managed appropriately.

Although decayed from the time of initial fabrication, the cesium and strontium capsules stored at WESF continue to represent a significant potential hazard to human health and the environment. WESF must be operated and maintained in a manner that ensures protection from this hazard until the capsules are removed from the facility.

To continue to safely manage these capsules, the ventilation system at the WESF facility must be replaced and upgraded due to immediate technical and safety concerns. This is the first step in eventual movement of the capsules to a dry storage facility.

At this point in time, there is no identified market for the cesium and strontium contained within the capsules.

Comment #3, from CH2M HILL Plateau Remediation Company (CHPRC), April 26, 2016

CHPRC has reviewed the draft Proposed Permit Modification 8C.2016.2D to the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal Dangerous Waste, Part V, Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F Closure Plan and the Addendum A Waste Encapsulation and Storage Facility Part A Form published for public comment. To ensure a thorough understanding of the permit and conditions, we have reviewed each condition, addendum, and attachment to determine whether the condition or requirement:

- Is consistent with the regulatory requirements under the Washington Administrative Code (WAC) and within the scope of Ecology's permitting authority
- Is clearly written and understandable
- Is consistent with the long history of our prior agreements with Ecology
- Reflects current operational needs and requirements
- Could practically be met to maintain completeness.

We have prepared our comments in a Review Comment Response format consistent with comments received from Ecology. This format provides (1) the condition or requirement identifier; (2) a comment that reflects what is necessary to be done with the condition or requirement; (3) a basis for the action proposed in the comment; and (4) suggested language where appropriate that would make the condition or requirement acceptable to the Permittees. We have identified two primary issues of concern regarding changes to the permit from the time of

submittal of the draft permit from DOE-RL to Ecology and the time of publication for public comment.

Comment Number 1:

Permit Section:

Addendum A Waste Encapsulation and Storage Facility Part A Form, Section XII. Process Codes and Design Capacities and Section XIII. Other Process Codes

Comment Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units was modified from "002" to "003". The Permittees believe the Process Total Number of Units is "002" as submitted to Ecology, which includes the two operating dangerous waste management units: Hot Cell G and Pool Cells. The Hot Cell A through Hot Cell f dangerous waste management unit is a closing unit and is not available for storage of the waste stream located in WESF.

Basis Text:

The Part A Form instructions state, "For container storage, combine all storage capacity on one line and list the number of container storage units under C. *Process Total Number of Units*." Hot Cells A through F will be filled with grout and closed. Once the unit is filled with grout, there will be no storage capabilities for the waste stream located in WESF, therefore it should not be included in the design capacity number of units.

Recommended Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units should be modified to "002".

Ecology Response to Comment Number 1 within Public Comment #3:

A unit's regulatory identity is established as of the date it qualifies for interim status (non-permitted facilities), or receives permit authorization through the permitting or permit modification process. A unit retains that regulatory identity until certification of the completion of closure according to the approved closure plan is provided to Ecology.

The fact that Ecology and the permittees have declared or agreed that any given unit is on a path to closure, and will no longer accept additional dangerous or mixed waste, in no way changes the regulatory identity of the unit. While it is true that no additional waste can physically be placed in these units once grouted, closure is not completed until final land disposal of the hot cells (as anticipated in the draft closure plan).

The basis text associated with this comment also states that because hot cells A-F will be grouted as the initial (but not final) activity under the anticipated approved closure plan, there will no longer be any storage capacity, and the unit should not be included in the design capacity of the units. These units lose their regulatory identity only after certification of completion of closure according to the approved closure plan. The fact that the unit will not be able to accept waste due

to grouting does not provide any regulatory basis to conclude that the units are not dangerous waste management units.

A modification has been made to the Part A to address the permittees' concern about clarifying Hot Cells A through F capacity. Ecology, in coordination with the permittees, decided to leave the total number of process units at 003 and not change it to 002 in Section XII. However, a change has been made in Section XIII, and each process unit is now listed individually, so that the storage capacity for each DWMU is clearly detailed.

Comment Number 2:

Permit Section:

Addendum H Waste Encapsulation and Storage Facility Hot Cell A through F Dangerous Waste Management Unit Closure Plan, Section H-A5.7, Removal of Wastes and Waste Residues, page Addendum H.50, lines 21-23.

Comment Text:

Section H-A5.7, page Addendum H.50, lines 21-23 were modified from the draft provided to Ecology from DOE as follows:

~~“Waste remaining in the trays and pipes was generated before RCRA became effective on the Hanford Facility, but it is conservatively managed as hazardous waste to establish~~ has been in storage since the hot cells were placed in surveillance and maintenance mode. These containers are subject to the dangerous waste regulation and must meet closure performance standards.”

Basis Text:

RCRA waste management regulations only apply to actions taken to manage waste after the date when the waste was legally classified as hazardous waste subject to the RCRA regulations. The first date when RCRA regulations became effective to some categories of waste was November 19, 1980. As explained by EPA in the December 21, 1988, Federal Register (Vol.53, 51444), “Many CERCLA actions occur in areas of contamination that contain waste treated, disposed of, **or stored** prior to November 19, 1980. If left **untouched, waste in such areas** are not currently regulated under Subtitle C of RCRA.” (Emphasis added) In other words, waste which was put in place prior to the effective date of the regulation which later classified it as hazardous waste, and had not been moved since that date (in that case, some 8 years later) had not been “actively managed” during the period when RCRA regulation was in effect, and the waste was therefore not subject to regulation under RCRA.

Similarly, Washington regulations recognize this jurisdictional time limit in WAC 173-303-040, which defines “generator” as “any person, by site, whose act or process produces dangerous waste or whose act first causes a dangerous waste to become subject to regulation.” [Emphasis added]

EPA did not initially authorize the Washington State Department of Ecology to regulate the management of the dangerous waste component in a mixture of radioactive and mixed waste. EPA granted authorization to first regulate the management of radioactive mixed waste in August 1987. Actions managing radioactive mixed waste prior to that date were not, and are not, regulated by

Ecology. The waste in the trays and pipes in these areas of WESF was put in its current location prior to the August 1987 effective date when Ecology began regulating the management of radioactive mixed waste. Since that time, the waste has been left untouched, and has not experienced any active management which could trigger application of the dangerous waste regulations to this waste. To summarize: The waste in these locations has not been actively managed because it has not been physically disturbed, nor have any additional wastes been added to these wastes. Indeed, while the management of Cesium 137 and Strontium 90 capsules in a radioactive materials storage pool has been agreed to by Ecology and DOE to constitute management of mixed waste, and therefore is subject to various requirements of WAC 173-303, by contrast the waste in the trays and pipes at issue here has never been included in the description of the waste managed under the WESF dangerous waste permit during the nearly 30 years since August 1987.

Recommended Text:

Section H-A5.7, page Addendum H.50, lines 21-23 should read, "Waste remaining in the trays and pipes was generated and put in place before August 1987, when mixed radioactive waste was first regulated on the Hanford Facility, and has not been regulated under RCRA and WAC 173-303. Nevertheless, the non-radioactive component of this material will be addressed according to dangerous waste closure performance standards to assure protection of human health and the environment."

Ecology Response to Comment Number 2 within Public Comment #3:

Ecology and the permittees are currently working to establish an agreed to definition and criteria for distinguishing between past-practice units and TSD units. In order to address the current risk to human health and the environment that exists at the WESF Facility, in a timely manner, Ecology has made a decision to remove the two sentences in the closure plan, mentioned in this comment.

The removal of the two sentences detailed in the comment will not in any way alter the necessary closure actions that are required of the permittee and detailed in the WESF Closure Plan.

It is Ecology's primary goal to protect human health and the environment. Ecology is confident that the closure steps detailed in the WESF Closure Plan are compliant with the RCRA (dangerous waste) closure requirements and are necessary to stabilize the hot cells and replace the ventilation system at WESF.

To establish the path forward for resolution of the above disagreement, Ecology will take the following steps:

- Ecology will add the issue of storage of waste prior to the effective date of RCRA to the Revision 9 Hanford Site-wide Permit Renewal Major Issues discussion topics.*
- Ecology will make this an issue for discussion at the Tier 1 and Tier 2 committees.*

Comment #4, from U.S. Department of Energy Richland Operations Office (RL), April 27, 2016

This letter is responding to your letter of March 11, 2016, (16-NWP-048) regarding the Permit Modification 8C.2016.2D to the Hanford Facility RCRA Permit for WESF. The U.S.

Department of Energy Richland Operations Office (RL) and its Contractors have reviewed the draft RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal Dangerous Waste, Part V, Closure Unit Group 6, WESF Hot Cells A through F Closure Plan, and the Addendum A, WESF Part A Form published for public comment. To ensure a thorough understanding of the permit and conditions, we have reviewed each condition, addendum, and attachment to determine whether the condition or requirement:

- Is consistent with the regulatory requirements under the Washington Administrative Code (WAC) and within the scope of Ecology's permitting authority
- Is clearly written and understandable
- Is consistent with the long history of our prior agreements with Ecology
- Reflects current operational needs and requirements
- Could practically be met to maintain completeness.

We have prepared our comments in a Review Comment Response format consistent with comments received from Ecology. This format provides (1) the condition or requirement identifier; (2) a comment that reflects what is necessary to be done with the condition or requirement; (3) a basis for the action proposed in the comment; and (4) suggested language where appropriate that would make the condition or requirement acceptable to the Permittees. RL has identified two primary issues of concern regarding changes to the permit from the time of submittal of the draft permit from RL to Ecology and the time of publication for public comment.

Comment Number 1:

Permit Section:

Addendum A Waste Encapsulation and Storage Facility Part A Form, Section XII. Process Codes and Design Capacities and Section XIII. Other Process Codes

Comment Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units was modified from "002" to "003". The Permittees believe the Process Total Number of Units is "002" as submitted to Ecology, which includes the two operating dangerous waste management units: Hot Cell G and Pool Cells. The Hot Cell A through Hot Cell f dangerous waste management unit is a closing unit and is not available for storage of the waste stream located in WESF.

Basis Text:

The Part A Form instructions state, "For container storage, combine all storage capacity on one line and list the number of container storage units under C. *Process Total Number of Units.*" Hot Cells A through F will be filled with grout and closed. Once the unit is filled with grout, there will be no storage capabilities for the waste stream located in WESF, therefore it should not be included in the design capacity number of units. As modified by Ecology, the CH2M HILL Plateau Remediation Company (CHPRC) would be unable to certify the Part A Form.

Recommended Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units should be modified to "002".

Ecology Response to Comment Number 1 within Public Comment #4:

A unit's regulatory identity is established as of the date it qualifies for interim status (non-permitted facilities), or receives permit authorization through the permitting or permit modification process. A unit retains that regulatory identity until certification of the completion of closure according to the approved closure plan is provided to Ecology.

The fact that Ecology and the permittees have declared or agreed that any given unit is on a path to closure, and will no longer accept additional dangerous or mixed waste, in no way changes the regulatory identity of the unit. While it is true that no additional waste can physically be placed in these units once grouted, closure is not completed until final land disposal of the hot cells (as anticipated in the draft closure plan).

The basis text associated with this comment also states that because hot cells A-F will be grouted as the initial (but not final) activity under the anticipated approved closure plan, there will no longer be any storage capacity, and the unit should not be included in the design capacity of the units. These units lose their regulatory identity only after certification of completion of closure according to the approved closure plan. The fact that the unit will not be able to accept waste due to grouting does not provide any regulatory basis to conclude that the units are not dangerous waste management units.

A modification has been made to the Part A to address the permittees' concern about clarifying Hot Cells A through F capacity. Ecology, in coordination with the permittees, decided to leave the total number of process units at 003 and not change it to 002 in Section XII. However, a change has been made in Section XIII, and each process unit is now listed individually, so that the storage capacity for each DWMU was clearly detailed.

Comment Number 2:

Permit Section:

Addendum H Waste Encapsulation and Storage Facility Hot Cell A through F Dangerous Waste Management Unit Closure Plan, Section H-A5.7, Removal of Wastes and Waste Residues, page Addendum H.50, lines 21-23.

Comment Text:

Section H-A5.7, page Addendum H.50, lines 21-23 were modified from the draft provided to Ecology from DOE as follows:

~~"Waste remaining in the trays and pipes was generated before RCRA became effective on the Hanford Facility, but it is conservatively managed as hazardous waste to establish~~ has been in storage since the hot cells were placed in surveillance and maintenance mode. These containers are subject to the dangerous waste regulation and must meet closure performance standards."

Basis Text:

RCRA waste management regulations only apply to actions taken to manage waste after the date when the waste was legally classified as hazardous waste subject to the RCRA regulations. The

first date when RCRA regulations became effective to some categories of waste was November 19, 1980. As explained by EPA in the December 21, 1988, Federal Register (Vol.53, 51444), “Many CERCLA actions occur in areas of contamination that contain waste treated, disposed of, **or stored** prior to November 19, 1980. If left **untouched, waste in such areas** are not currently regulated under Subtitle C of RCRA.” (Emphasis added) In other words, waste which was put in place prior to the effective date of the regulation which later classified it as hazardous waste, and had not been moved since that date (in that case, some 8 years later) had not been “actively managed” during the period when RCRA regulation was in effect, and the waste was therefore not subject to regulation under RCRA.

Similarly, Washington regulations recognize this jurisdictional time limit in WAC 173-303-040, which defines “generator” as “any person, by site, whose act or process produces dangerous waste or whose act first causes a dangerous waste to become subject to regulation.” (Emphasis added)

EPA did not initially authorize the Washington State Department of Ecology to regulate the management of the dangerous waste component in a mixture of radioactive and mixed waste. EPA granted authorization to first regulate the management of radioactive mixed waste in August 1987. Actions managing radioactive mixed waste prior to that date were not, and are not, regulated by Ecology. The waste in the trays and pipes in these areas of WESF was put in its current location prior to the August 1987 effective date when Ecology began regulating the management of radioactive mixed waste. Since that time, the waste has been left untouched, and has not experienced any active management which could trigger application of the dangerous waste regulations to this waste. To summarize: The waste in these locations has not been actively managed because it has not been physically disturbed, nor have any additional wastes been added to these wastes. Indeed, while the management of Cesium 137 and Strontium 90 capsules in a radioactive materials storage pool has been agreed to by Ecology and DOE to constitute management of mixed waste, and therefore is subject to various requirements of WAC 173-303, by contrast the waste in the trays and pipes at issue here has never been included in the description of the waste managed under the WESF dangerous waste permit during the nearly 30 years since August 1987.

Recommended Text:

Section H-A5.7, page Addendum H.50, lines 21-23 should read, “Waste remaining in the trays and pipes was generated and put in place before August 1987, when mixed radioactive waste was first regulated on the Hanford Facility, and has not been regulated under RCRA and WAC 173-303. Nevertheless, the non-radioactive component of this material will be addressed according to dangerous waste closure performance standards to assure protection of human health and the environment.”

Ecology Response to Comment Number 2 within Public Comment #4:

Ecology and the permittees are currently working to establish an agreed to definition and criteria for distinguishing between past-practice units and TSD units. In order to address the current risk to human health and the environment that exists at the WESF Facility, in a timely manner, Ecology has made a decision to remove the two sentences in the closure plan, mentioned in this comment.

The removal of the two sentences detailed in the comment will not in any way alter the necessary closure actions that are required of the permittee and detailed in the WESF Closure Plan.

It is Ecology's primary goal to protect human health and the environment. Ecology is confident that the closure steps detailed in the WESF Closure Plan are compliant with the RCRA (dangerous waste) closure requirements and are necessary to stabilize the hot cells and replace the ventilation system at WESF.

To establish the path forward for resolution of the above disagreement, Ecology will take the following steps:

- *Ecology will add the issue of storage of waste prior to the effective date of RCRA to the Revision 9 Hanford Site-wide Permit Renewal Major Issues discussion topics.*
- *Ecology will make this an issue for discussion at the Tier 1 and Tier 2 committees.*

Comment Number 3:

Permit Section:

Addendum A Waste Encapsulation and Storage Facility Part A Form, Section XII. Process Codes and Design Capacities and Section XIII. Other Process Codes and Addendum H WESF Hot Cell A through F Dangerous Waste Management Unit Closure Plan, Section H-A5.7, Removal of Wastes and Waste Residues, page Addendum H.50, lines 21-23.

Comment Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units was modified from "002" to "003." The Permittees believe the Process Total Number of Units is "002" as submitted to Ecology, which includes the two operating dangerous waste management units: Hot Cell G and the Pool Cells. The Hot Cell A through Hot Cell F dangerous waste management unit is a closing unit and is not available for storage of the waste stream located in WESF.

Section H-A5.7, page Addendum H.50, lines 21-23 were modified from the draft provided to Ecology.

Basis Text:

The closure plan package submittal to Ecology requires that the department either accept it as filed, or provide a completeness determination. It is not a charter for Ecology to disagree with the substance of the plan and the permit modification it is embedded in, but to simply ensure that it has all the basic information to constitute a "closure plan."

The WAC 173-303-830(4) regulations states that permit modifications that are submitted by a permit holder are to be published by the permit holder and public comments submitted to Ecology, which will consider amendments in the final version of the permit modification after considering public comment. Ecology has made a revision before the submitted version was offered for public comment.

Recommended Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units should be modified back to what RL and CHPRC certified in the modification submittal, "002" as stated in Comment 1 above.

Section H-A5.7, page Addendum H.50, lines 21-23 should be modified back to what RL and CHPRC certified in the modification submittal as stated in Comment 2 above.

Ecology Response to Comment Number 3 within Public Comment #4

The basis text as written is not accurate. This is a Class 3 Permit Modification, and Ecology is responsible to draft a permit to submit for public comment. It is within Ecology's authority to draft the permit language to ensure that it is accurate and compliant with the regulations. If the details in the permittee's application do not reflect the regulatory status of the facility, Ecology must correct text as necessary prior to drafting the permit and initiating the public comment period.

The permittees did provide a modification request to Ecology as detailed in WAC 173-303-830(4)(c). During the permittee's 60-day public comment period, Ecology reviewed the submitted permit modification and on March 25, 2015, we determined that the modification was incomplete. We then provided to the permittees a list of deficiencies to be addressed before Ecology could accept and draft the permit to initiate the second public comment period.

In the process of addressing the deficiencies, Ecology informed the permittees that the number of DWMUs and the two sentences on Page H.50 lines 21-23 were inaccurate and would need to be revised by the permittee or revised when Ecology drafted the permit. The permittees were made aware of the areas where Ecology planned to make revisions to the text prior to the permit being drafted and issued for public comment. Ecology also shared an advanced copy of the draft permit with the permittee, prior to the start of the public comment period.

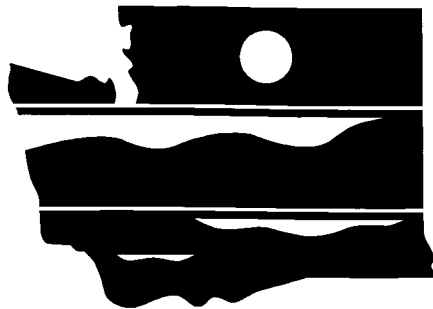
The commenter references WAC 173-303-830(4) in their basis text, but the correct reference is WAC 173-303-830(4)(c)(vi), WAC 173-303-840(1)(b) and WAC 173-303-840(2)(a).

All the revisions Ecology made to the draft permit are in compliance with WAC 173-303-840 and were included in the draft permit that was submitted for a public comment period from March 14, 2016, through April 27, 2016. The public had a chance to review and comment on the draft permit as detailed in WAC 173-303-830. See also response to comment number 1 within comment number 4.

APPENDIX A: COPIES OF ALL PUBLIC NOTICES

Public notices for this comment period:

1. Fact Sheet
2. Focus Sheet
3. Classified advertisement in the *Tri-City Herald*
4. Notice sent to the Hanford-Info email list



DEPARTMENT OF
ECOLOGY
State of Washington

Fact Sheet

Proposed Permit Modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, WA7890008967, to add Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F

March 2016

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Fact Sheet

Proposed Permit Modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, WA7890008967, to add Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F

Permittees

The permit is to be issued to Hanford's owner and operators. The U.S. Department of Energy (USDOE), as the owner and operator of the facility, is a permittee. USDOE is a single permittee, although it is listed below recognizing it has two offices in Richland, Washington. Hanford contractors are also permittees because they are the co-operators.

United States Department of Energy
Richland Operations Office
(Owner/Operator)
PO Box 550
Richland, Washington 99352

United States Department of Energy
Office of River Protection
(Owner/Operator)
PO Box 450
Richland, Washington 99352

CH2M HILL Plateau Remediation Company
(Co-Operator)
PO Box 1600, MSIN: H7-30
Richland, Washington 99352

Washington River Protection Solutions, LLC
(Co-Operator)
PO Box 850, MSIN: H3-21
Richland, Washington 99352

Mission Support Alliance, LLC
(Co-Operator)
PO Box 650, MSIN: H1-30
Richland, Washington 99352

Pacific Northwest National Laboratory
(Co-Operator)
PO Box 999, MSIN: K1-46
Richland, Washington 99352

Bechtel National, Inc.
(Co-Operator)
2435 Stevens Center Place, MSIN: H4-02
Richland, Washington 99354

Washington Closure Hanford, LLC
(Co-Operator)
2620 Fermi Avenue, MSIN: H4-24
Richland, Washington 99354

The Washington State Department of Ecology (Ecology) is proposing a draft permit modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (hereafter called the Hanford Site-wide Permit). This draft permit modification adds Closure Unit Group 6, Waste Encapsulation and Storage Facility (WESF) Hot Cells A through F to Part V of the Hanford Site-wide Permit. This draft permit modification consists of the Closure Unit Group 6 permit conditions, Part A form, and closure plan.

The proposed modifications also provide information on the requested Treatability Variance associated with the Hot Cells A through F.

Ecology developed this Fact Sheet to fulfill the requirements of Washington Administrative Code (WAC) 173-303-840(2)(f).

This Fact Sheet is divided into seven sections:

- 1.0 Hanford Site-Wide Permit Background
- 2.0 WESF Facility and Hot Cells A through F Dangerous Waste Management Unit Description
- 3.0 Class 3 Permit Modification Process for WESF Hot Cells A through F
- 4.0 Proposed Modification to Part V of the Hanford Site-wide Permit
- 5.0 Procedures for Reaching a Final Decision on the Draft Permit Modification
- 6.0 State Environmental Policy Act

1.0 Hanford Site-wide Permit Background

Ecology's Nuclear Waste Program (NWP) manages dangerous waste within the State by writing permits to regulate its treatment, storage, and disposal.

Ecology has the authority to regulate dangerous waste and the dangerous waste components of mixed (radioactive and dangerous) waste, under 70.105 RCW and WAC 173-303. The Hanford Site-wide Permit has requirements for the treatment, storage, and disposal of dangerous and mixed waste at Hanford. Ecology does not regulate waste that is solely radioactive. USDOE has the exclusive authority to regulate radioactive materials and radioactive waste at Hanford.

Ecology first issued the Hanford Site-wide Permit in 1994. The facility has been operating under that initial permit since then. Since 1994, the permit has been modified several times to incorporate changes or updates and to incorporate and closeout several dangerous waste management units (DWMUs).

The Hanford Site-wide Permit provides standard and general facility conditions, as well as unit group conditions for the operation, closure, and post-closure care of DWMUs at Hanford. These DWMUs are administratively grouped into operating, closure, or post-closure unit groups in the Site-wide Permit. Each unit group may contain one or more DWMU.

The Hanford Site-wide Permit is organized as follows:

- | | |
|----------|--|
| Part I | Standard Conditions. |
| Part II | General Facility Conditions. |
| Part III | Operating Units. |
| Part IV | Corrective Action for Past Practice Units. |
| Part V | Closure Units. |
| Part VI | Post-Closure Units. |

In 2012, NWP issued Revision 9 of the Hanford Site-wide Permit with 37 unit groups and two Corrective Action units. The DWMUs within the unit groups are operating, in closure, or in post-closure. At this time, the State is reconciling the over 5,000 public, EPA, and permittee comments received on that Revision 9 draft. Until a new Revision 9 of the Hanford Site-wide

Permit is issued for a new public comment period, the legal and enforceable revision of the Hanford Site-wide Permit is Revision 8C.

This draft permit modification adds Closure Unit Group 6, WESF Hot Cells A through F to Part V of the Hanford Site-wide Permit. The Part V, Closure Unit Group 6 draft permit modification consists of the unit group permit conditions specific to closure of WESF Hot Cells A through F, Part A form, Closure Plan, the permittees treatability variance request and Ecology's approval of the treatability variance request. Adding the WESF Hot Cells A through F to Part V of the Hanford Site-wide Permit is a Class 3 permit modification.

2.0 WESF Facility and Hot Cells A through F Dangerous Waste Management Unit Description

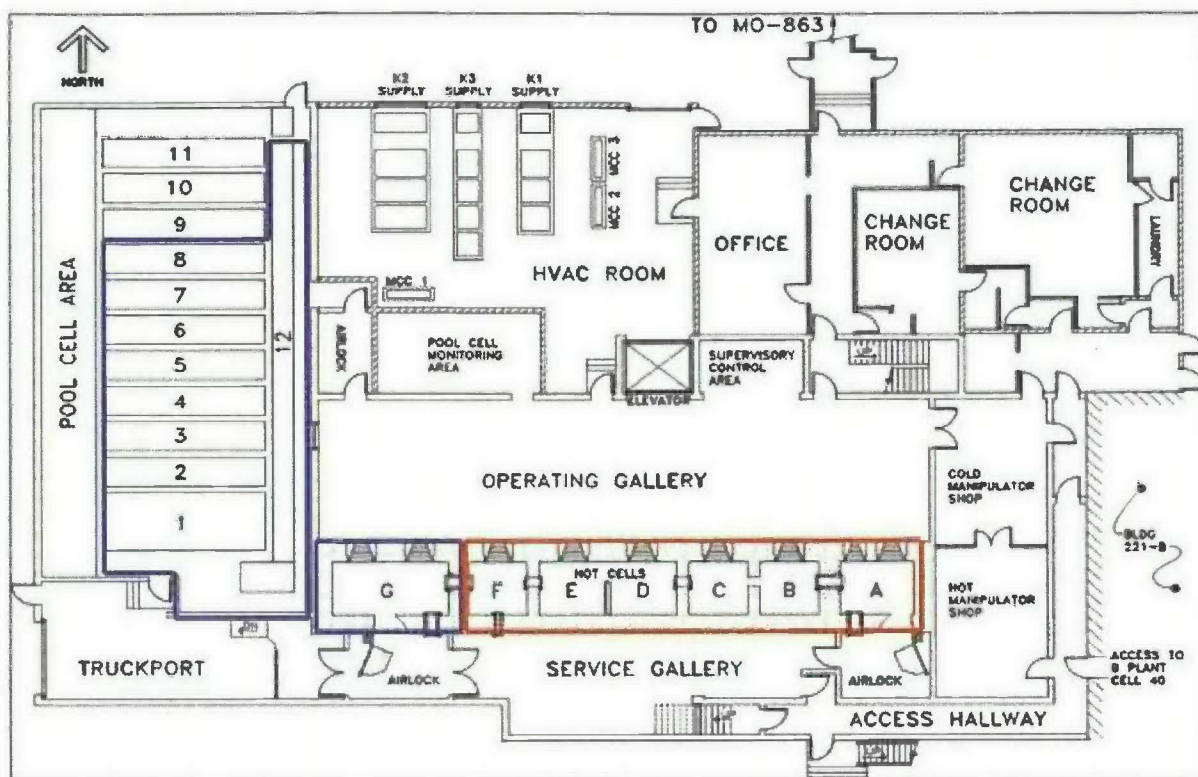
WESF was constructed on the west end of B Plant between 1971 and 1973 to encapsulate and store radioactive cesium-137 (Cs-137) and strontium-90 (Sr-90) that had been separated from plutonium production waste stored in underground storage tanks on the Hanford Facility. Separation of cesium and strontium from tank waste occurred at B Plant.

WESF consists of seven hot cells, the hot cell service area, operating areas, building service areas, and the pool cell area. WESF has three DWMUs: two operating (Hot Cell G and Pool Cells 1-8 and 12) and one initiating closure (Hot Cells A through F). These three DWMUs are miscellaneous units.

The hot cells, hot cell service area, operating areas, and building service areas supported encapsulation operations. Encapsulation included conversion of Cs-137 to cesium chloride and Sr-90 to strontium fluoride, placement of cesium chloride and strontium fluoride into double walled stainless steel capsules, and seal welding of the capsules. As a result of these activities, the hot cells became contaminated with a significant amount of Cs-137 and Sr-90, along with smaller amounts of dangerous constituents.

Large amounts of legacy contamination throughout some hot cells and the ventilation system require the stabilization of the contamination, as well as upgrades to the ventilation system. The proposed modifications are necessary to support replacement of the K3 ventilation exhaust system at WESF, which is permitted under the Hanford Air Operating Permit. The current filters are beyond their design life and are deteriorating. Therefore, a new ventilation exhaust system will be installed to ensure continued safe operations at WESF.

To replace the K3 ventilation system, USDOE must stabilize WESF hot cell contamination left over from prior waste processing activities by filling the cells with grout. The stabilization effort requires a revised Part A and Closure Plan as presented in this modification.



Waste Encapsulation and Storage Facility Pool and Process Cells

3.0 Class 3 Permit Modification Process for WESF Hot Cells A through F

On December 11, 2014, the permittees submitted a Class 3 permit modification request to Ecology for the WESF Hot Cells A through F, which included a draft Part A and a draft closure plan. The permittees held a public comment period from December 11, 2014 through February 12, 2015. The permittees also held a public meeting on January 7, 2015 at the Richland Public Library. The public comment period was subsequently extended to March 3, 2015 to give the public time to review the Petition for Site-Specific Variance from Land Disposal Restriction (LDR) Treatment Standards that was submitted to Ecology by the permittees.

After review of USDOE's Class 3 permit modification, Ecology issued a letter of incompleteness on March 25, 2015 in accordance with Washington Administrative Code (WAC) 173-303-830(4)(c)(vi) and WAC 173-303-840(1)(b). After working with the permittees to resolve the items of incompleteness and technical deficiencies Ecology issued a letter of completeness to the Class 3 permit modification on February 11, 2016. The same day Ecology also issued an approval to the permittees request for a Site-Specific Variance from Land Disposal Restriction (LDR) Treatment Standards.

Public comments from the permittees' comment period are addressed by Ecology in a response to comment document. Revision 8C of the Hanford Site-wide Permit will be modified by permit modification. In order to be complete and thorough in developing the draft permit, Ecology has also responded to WESF specific public comments that were received during the draft Revision 9 permit renewal public comment period (May 1, 2012 to October 22, 2012), in this response to

comment document. This response to comment document accompanies the draft permit modification. This response to comment document associated with the USDOE 60-day public comment period and the draft Revision 9 renewal public comment period is available online at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>.

4.0 Proposed Modification to Part V of the Hanford Site-wide Permit

The proposed draft permit modification adds Closure Unit Group 6, WESF Hot Cells A through F to Part V of the Hanford Site-wide Permit. The draft permit modification consists of permit conditions, Part A, and a closure plan for initiating closure of WESF Hot Cells A through F.

The closure plan describes the steps that USDOE will take to perform clean closure of Hot Cells A through F. To support stabilization of the old ventilation system and Hot Cells A through F, USDOE will complete both initial and final closure activities. Initial closure activities will be site preparation, unit modification and evaluation prior to stabilization, and stabilization of the contamination within Hot Cells A through F. Following completion of the initial Hot Cell A through F closure activities, an extended closure period will begin prior to completion of final clean closure of the Hot Cells A through F DWMU. Final closure activities for Hot Cells A through F will be completed concurrent with closure activities for the remaining two operating DWMUs.

The unit group permit conditions and Addenda in Part V, Closure Unit Group 6 are intended to protect human health and the environment by ensuring the WESF Hot Cells A through F is closed according to the approved Addendum H, Closure Plan. Ecology reviewed the closure plan submittal for the WESF Hot Cells A through F and has included permit conditions to ensure the permittees comply with environmental standards, and modify the closure plan as needed during closure activities.

Permit Condition V.6.A is a standard permit condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V, or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.

Permit Condition V.6.B.1 requires the permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close WESF Hot Cells A through F in accordance with the plan.

Permit Condition V.6.B.2 is intended to ensure sampling assumptions made in the Addendum H, Closure Plan, *Section H-A5.13, Sampling and Analysis Plan and Constituents to be Analyzed*, were met. If sampling assumptions were not met, the permit condition requires the permittees to submit a permit modification request to amend the closure plan to include a revised sampling design.

In addition to the proposed permit modifications and permit conditions, USDOE also submitted a request for a site-specific treatability variance from applicable LDR treatment standards (letter 15-AMRP-0070) for six containers of waste in Hot Cells B and C, in accordance with WAC 173-303-140. These six containers of waste contain floor sweepings with strontium fluoride and processing debris, including metal shavings, and other miscellaneous waste material produced

during operation of the hot cells. Four of the six containers are trays in the Hot Cell B furnace with approximately 0.6 kg of strontium fluoride floor sweepings, and two capped pipes in the southwest corner of Hot Cell C with approximately 1.2 kg of strontium fluoride floor sweepings.

Ecology approved USDOE's request for treatability variance on February 11, 2016 (letter number 16-NWP-010), which will allow stabilization by an alternative treatment method of macroencapsulation of these waste containers. This method will use grout to completely surround the waste, which will be protective of human health and the environment by reducing the leachability of contaminants and minimizing waste generation and potential radiological exposure to workers. The requested treatability variance and approval has detailed the justification and protectiveness of the alternative treatment.

5.0 Procedures for Reaching a Final Decision on the Draft Permit Modification

The Washington State Dangerous Waste Regulations in WAC 173-303-830 describe the types of changes or modifications that may be made to a Dangerous Waste Permit issued by Ecology.

Part I, Part II, and Attachment 9 Permit Applicability Matrix will be modified after the public comment period when the permit modification becomes effective.

This draft permit modification was prepared according to the procedures in WAC 173-303-840(2). As required by WAC 173-303-840(3)(d), draft permits Ecology issues will have at least a 45-day public comment period. The public comment period for this draft permit begins on March 14, 2016 and ends on April 27, 2016.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) April 27, 2016. Direct all written comments to:

Stephanie Schleif
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354
E-mail address: hanford@ecy.wa.gov

In accordance with WAC 173-303-840(10)(c), when a permit is modified, only those conditions to be modified will be reopened when a new draft permit is prepared. All other aspects of the existing Permit remain in effect for the duration of the modification.

Ecology will consider and respond to all written comments on this draft permit modification submitted by the deadline. Ecology will then issue a final permit modification that will become effective 30 days after the issuance date. If the final decision includes substantial changes to the draft permit modification because of public comment, we will consider initiating a new public comment period.

A public hearing is not scheduled, but if there is enough interest, Ecology will consider holding one. To request a hearing or for more information, contact:

Dieter Bohrmann
Washington State Department of Ecology
(509) 372-7950
E-mail address: hanford@ecy.wa.gov

After completion of the 45-day public comment period, Ecology will issue the final Hanford Site-wide Permit with Part V, Closure Unit Group 6, WESF Hot Cells A through F to the permittees. NWP will also issue a Response to Comments document to the permittees. The final permit decision may be appealed within 30 days after issuance of that decision. If there is no appeal, the permit will stand as issued.

Copies of the Part V, Closure Unit Group 6, WESF Hot Cells A through F, conditions, Part A, closure plan and treatability variance approval are available for review at the NWP Resource Center, USDOE Administrative Record, and Hanford Public Information Repositories. For additional information call (509) 372-7950 or e-mail hanford@ecy.wa.gov.

United States Department of Ecology
Nuclear Waste Program Resource Center
3100 Port of Benton Boulevard
Richland, Washington 99354
Contact: Valarie Pardue (509) 372-7950

United States Department of Energy
Administrative Record
2440 Stevens Drive
Richland, Washington 99354
Contact: Heather Childers (509) 376-2530

Hanford Public Information Repositories

Richland

United States Department of Energy
Reading Room
2770 Crimson Way
Richland, Washington 99354
Contact: Janice Parthree (509) 372-7443

Portland

Portland State University
Branford Price Millar Library
1875 Southwest Park Avenue
Portland, Oregon 97201
Contact: Claudia Weston (503) 725-4542

Seattle

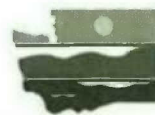
University of Washington Suzzallo Library
4000 15th Avenue Northeast
Seattle, Washington 98195
Contact: Emily Keller (206) 685-2660

Spokane
Gonzaga University
Foley Center
502 East Boone Avenue
Spokane, Washington 99258
Contact: John Spencer (509) 313-6110

Information on the proposed permit modification is also available online at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>. If special accommodations are needed for public comment, contact Ecology's Nuclear Waste Program at (509)372-7950.

6.0 State Environmental Policy Act

In accordance with WAC 187-11-960, the Permittees provided a certified environmental checklist for WESF Hot Cells A through F. Ecology's review of the checklist resulted in a Determination of Significance/Adoption of the USDOE's *Hanford Defense High Level, Transuranic and Tank Wastes EIS* Record of Decision. A copy of the Determination of Significance/Adoption is available online at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>



Ecology Proposes Permit Change to Close Parts of Hanford Storage Facility

The [Washington State Department of Ecology](#) (Ecology) is proposing a change to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit*, Revision 8C. This change would close Hot Cells A through F at the Waste Encapsulation and Storage Facility (WESF), which are no longer operating.

Large amounts of legacy contamination throughout the hot cells and ventilation system require stabilization of the contamination and upgrades to the ventilation system. The proposed changes are needed to support replacement of the K3 ventilation exhaust system at WESF, which is permitted under the Hanford Air Operating Permit.

As part of replacement of the ventilation exhaust system, the U.S. Department of Energy and its contractor (the permittees) proposed to stabilize WESF Hot Cell contamination left over from prior waste processing activities by filling Hot Cells A through F with grout. The stabilization effort requires submittal of a closure plan for WESF Hot Cells A through F.

Ecology has approved a treatment variance for specific waste items in Hot Cells B and C under [Washington Administrative Code 173-303-140](#). This variance will use grout to completely surround the waste containers, which protects human health and the environment by reducing the leachability of contaminants and minimizing waste generation and potential radiological exposure to workers. The treatability variance is detailed in the closure plan for WESF Hot Cells A through F.

Ecology invites you to review, and comment on this WESF Permit modification.

View the Full Proposal

This document is a summary of the proposed WESF Permit changes. The full proposal is available beginning March 14, 2016, on [Ecology's website \(www.ecy.wa.gov/programs/nwp/commentperiods.htm\)](#) or at Hanford's public information repositories. (See locations on next page).

WHY IT MATTERS

Nearly 2,000 capsules of cesium and strontium are stored underwater at Hanford's Waste Encapsulation and Storage Facility (WESF). The ventilation system in the aging facility needs to be replaced. In order to replace the system, we need to close Hot Cells A through F, which are no longer operating. This modification will add these hot cells as a closing unit to the Hanford Permit, Revision 8C.

PUBLIC COMMENT PERIOD

March 14 through
April 27, 2016

To Submit Comments

Please send comments by email (preferred), U.S. mail, or hand deliver them to:

Stephanie Schleif
3100 Port of Benton Blvd.
Richland, WA 99354
Hanford@ecy.wa.gov

Public Meeting

A public meeting is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

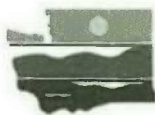
Dieter Bohrmann
509-372-7950
Hanford@ecy.wa.gov

Special Accommodations

If you require special accommodations or need this document in a version for the visually impaired, call the Nuclear Waste Program at 509-372-7950.

Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.





DEPARTMENT OF
ECOLOGY
State of Washington

3100 Port of Benton Blvd.
Richland, WA 99354

**Public Comment Period on
Hanford's Waste Encapsulation
and Storage Facility**

March 14 through April 27, 2016

Submit questions or comments to:

Hanford@ecy.wa.gov

(See page 1 for more options.)

Public Information Repositories

Ecology Nuclear Waste Program Resource Center
3100 Port of Benton Blvd.
Richland, WA 99354
Contact: Valarie Pardue 509-372-7950

Portland State University Library
1875 Southwest Park Avenue
Portland, OR 97201
Contact: Claudia Weston 503-725-4542

U.S. Department of Energy Administrative Record
2440 Stevens Drive, Room 1101
Richland, WA 99354
Contact: Heather Childers 509-376-2530

University of Washington Suzzallo Library
4000 15th Avenue Northeast
Seattle, WA 98195
Contact: Emily Keller 206-685-2660

U.S. Department of Energy Public Reading Room
2770 Crimson Way, CIC Room 101L
Richland, WA 99354
Contact: Janice Parthree 509-372-7443

Gonzaga University, Foley Center Library
502 East Boone Avenue
Spokane, WA 99258
Contact: John Spencer 509-313-6110



Applications may be obtained from the District website at www.pod1.org/Page/7864, or by calling Support Services at (509) 546-2691.

From: ^TPA [TPA@RL.GOV]

Sent: Thursday, December 11, 2014 7:46 AM

To: HANFORD-INFO@LISTSERV.WA.GOV

Subject: Public Comment Period on Proposed Permit Changes for Hanford Waste Encapsulation and Storage Facility

This is a message from the U.S. Department of Energy, Richland Operations Office

*The U.S. Department of Energy, Richland Operations Office (DOE-RL) is proposing permit modifications to improve ventilation and grout six hot cells that are no longer in use at the Waste Encapsulation and Storage Facility (WESF). We are holding a 60-day comment period, and we want your input! The public comment period runs from **Dec. 11, 2014 through Feb. 12, 2015**. A public meeting will be held **Jan. 7, 2015** at 5:30 p.m., at the Richland Public Library, 955 Northgate Drive, Richland, WA*

Background

In the 1970s, the radioactive isotopes of the chemical elements cesium and strontium, which generate a large amount of heat, were removed from the high-level waste tanks at Hanford to reduce the temperature of the waste inside the tanks. Both elements were ultimately placed in sturdy, stainless steel containers in WESF for safe storage and monitoring. WESF stores nearly 2,000 cesium and strontium capsules in underwater pools. During operations, WESF hot cells protected workers and allowed them to safely handle radioactive materials.

Permit modifications

The proposed changes are Class 3 permit modifications to the Hanford Facility Dangerous Waste Permit Operating Unit Group 14, which regulates the storage, treatment and disposal of Hanford's dangerous and mixed dangerous waste. Large amounts of legacy contamination throughout some hot cells and the ventilation system require the stabilization of the contamination, as well as upgrades to the ventilation system. The proposed changes are necessary to support replacement of the K3 ventilation exhaust system at WESF, which is permitted under the Hanford Air Operating Permit. The current filters are beyond their design life and are deteriorating. Therefore, a new system is being installed to ensure continued safe operations at WESF.

To replace the K3 ventilation system, DOE-RL must stabilize WESF hot cell contamination left over from prior waste processing activities by filling the cells with grout. The stabilization effort requires a revision to the WESF Part A Application, which details facility information, and submittal of a closure plan to detail this interim step to closure at WESF. The closure plan will address Hot Cells A through F, which are no longer operational.

Class 3 Modifications are the most significant of the three modification classes and address changes that substantially alter a facility or its operations. Class 3 Modifications requirements include:

- Fact sheet and public notification via the Hanford email and postal mail list
- 60-day public comment period on the permit modification request (includes public meeting)
- 45-day public comment

Land Disposal Restriction (LDR) Treatment variance

In addition to the proposed permit modifications, DOE-RL will also submit to the Washington Department of Ecology (Ecology) in accordance with WAC 173-303-140, a request for a site-specific treatability variance from applicable LDR treatment standards for specific waste items in Hot Cells B and C. These waste items hold a small amount of floor sweepings containing strontium fluoride, processing debris and other waste material produced during the last steps of cleanup and shutdown of operations. This request will be submitted to Ecology in January 2015.

Ordinarily, this type of waste would be treated by mixing the waste material with a stabilizing agent, followed by sampling and analysis to confirm that LDR treatment standards have been accomplished. However, these materials are highly radioactive, with half-lives of about 30 years for Cesium-137 and 29 years for Strontium-90. Meeting LDR treatment requires intrusive activities and handling of this waste, increasing risk of exposure to workers and the environment and generation of additional mixed waste. In addition, the high radiological nature of the waste items interferes with laboratory analyses needed to confirm treatment was successful.

If approved, a variance will allow stabilization by an alternative treatment method of macroencapsulation of these waste items. This method uses grout to completely surround the waste, which protects human health and the environment by reducing the leachability of contaminants and minimizing waste generation and potential radiological exposure to workers. The requested treatability variance will detail the justification and protectiveness of this alternative treatment.

Copies of the proposed permit modifications and supporting documentation are available at the Administrative Record, 2440 Stevens Drive, Richland, WA. The variance request will be available in late January 2015. The permittee's compliance history during the life of the permit being modified is available from Ecology at (509) 372-7950, or email Hanford@ecy.wa.gov.

APPENDIX B: COPIES OF ALL WRITTEN COMMENTS



RECEIVED

APR 26 2016

DEPARTMENT OF ECOLOGY
NWP - RICHLAND

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland, WA
99352

April 26, 2016

Central Files H5WP
File Name: class II + III mod. CHPRC-1601903
Cross Reference: _____

Mr. Dieter G. Bohrmann
State of Washington
Department of Ecology
3100 Port of Benton Blvd.
Richland, WA 99354

Dear Mr. Bohrmann:

COMMENTS FROM CH2M HILL PLATEAU REMEDIATION COMPANY (CHPRC) ON THE DRAFT PROPOSED PERMIT MODIFICATION 8C.2016.2D TO THE HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT PERMIT, DANGEROUS WASTE PORTION, REVISION 8C, FOR THE TREATMENT, STORAGE, AND DISPOSAL OF DANGEROUS WASTE, PART V, CLOSURE UNIT GROUP 6, WASTE ENCAPSULATION AND STORAGE FACILITY HOT CELLS A THROUGH F, WA7890008967

Reference: Letter, S. L. Dahl, ECY, to J. A. Ciucci, CHPRC, "Proposed Class 3 Permit Modification 8C.2016.2D to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part V, Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F, WA7890008967, 16-NWP-048, dated March 11, 2016*

CHPRC has reviewed the draft Proposed Permit Modification 8C.2016.2D to the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal Dangerous Waste, Part V, Closure Unit Group 6, Waste Encapsulation and Storage Facility Hot Cells A through F Closure Plan and the Addendum A Waste Encapsulation and Storage Facility Part A Form published for public comment. To ensure a thorough understanding of the permit and conditions, we have reviewed each condition, addendum, and attachment to determine whether the condition or requirement:

- Is consistent with the regulatory requirements under the Washington Administrative Code (WAC) and within the scope of Ecology's permitting authority
- Is clearly written and understandable
- Is consistent with the long history of our prior agreements with Ecology
- Reflects current operational needs and requirements

- Could practically be met to maintain compliance.

We have prepared our comments in a Review Comment Response format consistent with comments received from Ecology. This format provides (1) the condition or requirement identifier; (2) a comment that reflects what is necessary to be done with the condition or requirement; (3) a basis for the action proposed in the comment; and (4) suggested language where appropriate that would make the condition or requirement acceptable to the Permittees. We have identified two primary issues of concern regarding changes to the permit from the time of submittal of the draft permit from DOE-RL to Ecology and the time of publication for public comment.

Comment Number 1:

Permit Section:

Addendum A Waste Encapsulation and Storage Facility Part A Form, Section XII. Process Codes and Design Capacities and Section XIII. Other Process Codes

Comment Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units was modified from "002" to "003". The Permittees believe the Process Total Number of Units is "002" as submitted to Ecology, which includes the two operating dangerous waste management units: Hot Cell G and the Pool Cells. The Hot Cell A through Hot Cell F dangerous waste management unit is a closing unit and is not available for storage of the waste stream located in WESF.

Basis Text:

The Part A Form instructions state, "For container storage, combine all storage capacity on one line and list the number of container storage units under C. *Process Total Number of Units.*" Hot Cells A through F will be filled with grout and closed. Once the unit is filled with grout, there will be no storage capabilities for the waste stream located in WESF, therefore it should not be included in the design capacity number of units.

Recommended Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units should be modified to "002".

Comment Number 2:

Permit Section:

Addendum H Waste Encapsulation and Storage Facility Hot Cell A through F Dangerous Waste Management Unit Closure Plan, Section H-A5.7, *Removal of Wastes and Waste Residues*, page Addendum H.50, lines 21-23.

Comment Text:

Section H-A5.7, page Addendum H.50, lines 21-23 were modified from the draft provided to Ecology from DOE as follows:

~~"Waste remaining in the trays and pipes was generated before RCRA became effective on the Hanford Facility, but it is conservatively managed as hazardous waste to establish has been in storage since the hot cells were placed in surveillance and maintenance mode. These containers are subject to the dangerous waste regulations and must meet closure performance standards."~~

Basis Text:

RCRA waste management regulations only apply to actions taken to manage waste after the date when the waste was legally classified as hazardous waste subject to the RCRA regulations. The first date when RCRA regulations became effective to some categories of waste was November 19, 1980. As explained by EPA in the December 21, 1988, Federal Register (Vol. 53, 51444), "Many CERCLA actions occur in areas of contamination that contain waste treated, disposed of, *or stored* prior to November 19, 1980. If left *untouched, wastes in such areas* are not currently regulated under Subtitle C of RCRA." (Emphasis added) In other words, waste which was put in place prior to the effective date of the regulation which later classified it as hazardous waste, and had not been moved since that date (in that case, some 8 years later) had not been "actively managed" during the period when RCRA regulation was in effect, and the waste was therefore not subject to regulation under RCRA.

Similarly, Washington regulations recognize this jurisdictional time limit in WAC 173-303-040, which defines "generator" as "any person, by site, whose act or process produces dangerous waste or whose act first causes a dangerous waste to become subject to regulation." [Emphasis added]

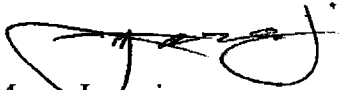
EPA did not initially authorize the Washington Department of Ecology to regulate the management of the dangerous waste component in a mixture of radioactive and mixed waste. EPA granted authorization to first regulate the management of radioactive mixed waste in August 1987. Actions managing radioactive mixed waste prior to that date were not, and are not, regulated by Ecology. The waste in the trays and pipes in these areas of WESF was put in its current location prior to the August 1987 effective date when Ecology began regulating the management of radioactive mixed waste. Since that time, the waste has been left untouched, and has not experienced any active management which could trigger application of the dangerous waste regulations to this waste. To summarize: The waste in these locations has not been actively managed because it has not been physically disturbed, nor have additional wastes been added to these wastes. Indeed, while the management of Cesium 137 and Strontium 90 capsules in a radioactive materials storage pool has been agreed by Ecology and DOE to constitute management of mixed waste, and therefore is subject to various requirements of WAC 173-303, by contrast the waste in the trays and pipes at issue here has never been included in the description of the waste managed under the WESF dangerous waste permit during the nearly 30 years since August 1987.

Recommended Text:

Section H-A5.7, page Addendum H.50, lines 21-23 should read, "Waste remaining in the trays and pipes was generated and put in place before August 1987, when mixed radioactive waste was first regulated on the Hanford Facility, and has not been regulated under RCRA and WAC 173-303. Nevertheless, the non-radioactive component of this material will be addressed according to dangerous waste closure performance standards to assure protection of human health and the environment."

You may contact me at 372-9242, or your staff may contact Stephanie Johansen at 373-1031 with any questions regarding this matter.

Sincerely,



Moses Jarayasi
Vice President
Environmental Program & Strategic Planning

srh/jmd

cc: C. E. Clark, DOE-RL
R. J. Corey, DOE-RL
L. J. Cusack, CHPRC
O. A. Farabee, DOE-RL
J. A. Frey, DOE-RL

S. K. Johansen, CHPRC
E. D. MacAlister, DOE-RL
T. C. McKarns, DOE-RL
C. J. Simiele, CHPRC
R. T. Swenson, CHPRC

From: Carl Holder <holdercarl@hotmail.com>
Date: March 14, 2016 at 6:18:25 PM PDT
To: "Hanford (ECY)" <hanford@ECY.WA.GOV>
Subject: WESF Public Comment

Stephanie Schleif
Department of Ecology
State of Washington

RE: WESF Hot Cell Ventilation replacement.

The capsules of Cesium and Strontium have high value.

- The Cesium is highly valuable as an excellent source of gamma radiation.
- The Strontium capsules are also valuable for sources of beta radiation and daughter isotopes.

Gamma radiation is very useful as for medical sterilization, phytosanitary needs, etc.

This Strontium resource has many uses in nuclear medicine and contains valuable daughter isotopes.

The proposed expensive upgrade to ventilate a building that is pending decommission sounds counterproductive during these difficult budgetary times.

A broader plan would include an analysis of the opportunities to transition the Cesium and Strontium capsules, now substantially decayed, to beneficial use.

Best regards,
Carl Holder
PO Box 1316
Pasco WA 99301
holdercarl@hotmail.com

From: Mike [mikeconlan@hotmail.com]
Sent: Saturday, March 12, 2016 1:37 PM
To: Hanford (ECY)
Subject: Permit change to storage facility

- 1) Remove all nuclear waste,
- 2) Do not allow anymore nuclear waste into the facility,
- 3) Replace all the single storage tanks,
- 4) Stop all the nuclear leakage entering the Columbia River.

Mike Conlan

Redmond WA



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

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DEPARTMENT OF ECOLOGY
NWP - RICHLAND

16-ESQ-0068

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Mr. Ron Skinnarland
Waste Management Section Manager
Nuclear Waste Program
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Central Files _____
File Name: _____
Cross Reference: _____

Dear Mr. Skinnarland:

COMMENTS ON THE DRAFT PROPOSED PERMIT MODIFICATION 8C.2016.2D TO THE HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT, DANGEROUS WASTE PORTION, REVISION 8C, FOR THE TREATMENT, STORAGE, AND DISPOSAL DANGEROUS WASTE, PART V, CLOSURE UNIT GROUP 6, WASTE ENCAPSULATION AND STORAGE FACILITY (WESF) HOT CELLS A THROUGH F, WA7890008967

This letter is responding to your letter of March 11, 2016, (16-NWP-048) regarding the Permit Modification 8C.2016.2D to the Hanford Facility RCRA Permit for WESF. The U.S. Department of Energy Richland Operations Office (RL) and its Contractors have reviewed the draft RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal Dangerous Waste, Part V, Closure Unit Group 6, WESF Hot Cells A through F Closure Plan, and the Addendum A, WESF Part A Form published for public comment. To ensure a thorough understanding of the permit and conditions, RL has reviewed each condition, addendum, and attachment to determine whether the condition or requirement:

- Is consistent with the regulatory requirements under the Washington Administrative Code (WAC) and within the scope of Ecology's permitting authority;
- is clearly written and understandable;
- is consistent with the long history of our prior agreements with Ecology;
- reflects current operational needs and requirements; and
- could practically be met to maintain compliance.

We have prepared our comments in a Review Comment Response format consistent with comments received from the Washington State Department of Ecology (Ecology). This format provides: (1) the condition or requirement identifier; (2) a comment that reflects what is necessary to be done with the condition or requirement; (3) a basis for the action proposed in the comment; and (4) suggested language where appropriate that would make the condition or requirement acceptable to the Permittees. RL has identified two primary issues of concern

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regarding changes to the permit from the time of submittal of the draft permit from RL to Ecology and the time of publication for public comment.

Comment Number 1:

Permit Section:

Addendum A WESF, Part A Form, Section XII. Process Codes and Design Capacities and Section XIII. Other Process Codes.

Comment Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units was modified from "002" to "003." The Permittees believe the Process Total Number of Units is "002" as submitted to Ecology, which includes the two operating dangerous waste management units: Hot Cell G and the Pool Cells. The Hot Cell A through Hot Cell F dangerous waste management unit is a closing unit and is not available for storage of the waste stream located in WESF.

Basis Text:

The Part A Form instructions state, "For container storage, combine all storage capacity on one line and list the number of container storage units under C. Process Total Number of Units." Hot Cells A through F will be filled with grout and closed. Once the unit is filled with grout, there will be no storage capabilities for the waste stream located in WESF; therefore, it should not be included in the design capacity number of units. As modified by Ecology, the CH2M HILL Plateau Remediation Company (CHPRC) would be unable to certify the Part A Form.

Recommended Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units should be modified to "002."

Comment Number 2:

Permit Section:

Addendum H WESF Hot Cell A through F Dangerous Waste Management Unit Closure Plan, Section H-A5.7, Removal of Wastes and Waste Residues, page Addendum H.50, lines 21-23.

Comment Text:

Section H-A5.7, page Addendum H.50, lines 21-23 were modified from the draft provided to Ecology from RL as follows:

"Waste remaining in the trays and pipes was generated before RCRA became effective on the Hanford Facility, but it is conservatively managed as hazardous waste to establish has been in storage since the hot cells were placed in surveillance and maintenance mode. These containers are subject to the dangerous waste regulations and must meet closure performance standards."

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Basis Text:

RCRA waste management regulations only apply to actions taken to manage waste after the date when the waste was legally classified as hazardous waste subject to the RCRA regulations. The first date when RCRA regulations became effective to some categories of waste was November 19, 1980. As explained by the U.S. Environmental Protection Agency (EPA) in the December 21, 1988, Federal Register (Vol. 53, 51444), "Many CERCLA actions occur in areas of contamination that contain waste treated, disposed of, or stored prior to November 19, 1980. If left *untouched, wastes in such areas* are not currently regulated under Subtitle C of RCRA." (Emphasis added.) In other words, waste which was put in place prior to the effective date of the regulation which later classified it as hazardous waste, and had not been moved since that date (in that case, some 8 years later) had not been "actively managed" during the period when RCRA regulation was in effect, and the waste was therefore not subject to regulation under RCRA.

Similarly, Washington regulations recognize this jurisdictional time limit in WAC 173-303-040, which defines "generator" as "any person, by site, whose act or process produces dangerous waste or whose act first causes a dangerous waste to become subject to regulation." (Emphasis added.)

EPA did not initially authorize Ecology to regulate the management of the dangerous waste component in a mixture of radioactive and mixed waste. EPA granted authorization to first regulate the management of radioactive mixed waste in August 1987. Actions managing radioactive mixed waste prior to that date were not, and are not, regulated by Ecology. The waste in the trays and pipes in these areas of WESF was put in its current location prior to the August 1987 effective date when Ecology began regulating the management of radioactive mixed waste. Since that time, the waste has been left untouched, and has not experienced any active management which could trigger application of the dangerous waste regulations to this waste. To summarize, the waste in these locations has not been actively managed because it has not been physically disturbed, nor have additional wastes been added to these wastes. Indeed, while the management of Cesium 137 and Strontium 90 capsules in a radioactive materials storage pool has been agreed by Ecology and RL to constitute management of mixed waste, and; therefore, is subject to various requirements of WAC 173-303, by contrast the waste in the trays and pipes at issue here has never been included in the description of the waste managed under the WESF dangerous waste permit during the nearly 30 years since August 1987.

Recommended Text:

Section H-A5.7, page Addendum H.50, lines 21-23 should read, "Waste remaining in the trays and pipes was generated and put in place before August 1987, when mixed radioactive waste was first regulated on the Hanford Facility, and has not been regulated under RCRA and WAC 173-303. Nevertheless, the non-radioactive component of this material will be addressed according to dangerous waste closure performance standards to assure protection of human health and the environment."

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Comment Number 3:

Permit Section:

Addendum A Waste Encapsulation and Storage Facility Part A Form, Section XII. Process Codes and Design Capacities and Section XIII. Other Process Codes and Addendum H WESF Hot Cell A through F Dangerous Waste Management Unit Closure Plan, Section H-A5.7, Removal of Wastes and Waste Residues, page Addendum H.50, lines 21-23.

Comment Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units was modified from "002" to "003." The Permittees believe the Process Total Number of Units is "002" as submitted to Ecology, which includes the two operating dangerous waste management units: Hot Cell G and the Pool Cells. The Hot Cell A through Hot Cell F dangerous waste management unit is a closing unit and is not available for storage of the waste stream located in WESF.

Section H-A5.7, page Addendum H.50, lines 21-23 were modified from the draft provided to Ecology.

Basis Text:

The closure plan package submittal to Ecology requires that the department either accept it as filed, or provide a completeness determination. It is not a charter for Ecology to disagree with the substance of the plan and the permit modification it is embedded in, but to simply ensure that it has all the basic information to constitute a "closure plan."

The WAC 173-303-830(4) regulations states that permit modifications that are submitted by a permit holder are to be published by the permit holder and public comments submitted to Ecology, which will consider amendments in the final version of the permit modification after considering public comment. Ecology has made a revision before the submitted version was offered for public comment.

Recommended Text:

Section XII and Section XIII Line Item 1.C Process Total Number of Units should be modified back to what RL and CHPRC certified in the modification submittal, "002" as stated in Comment 1 above.

Section H-A5.7, page Addendum H.50, lines 21-23 should be modified back to what RL and CHPRC certified in the modification submittal as stated in Comment 2 above.